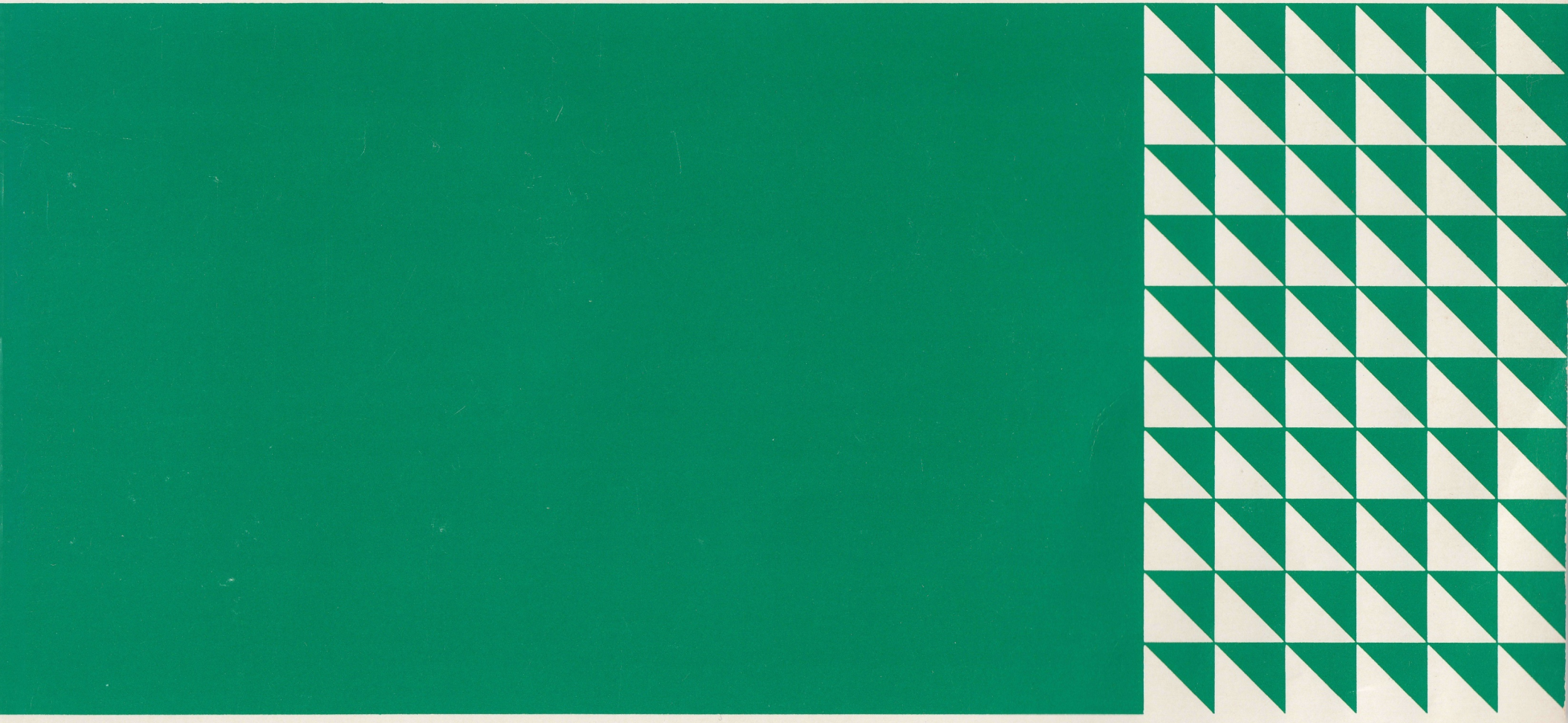
IBM

3742 Dual Data Station
Basic Operator Training



Student Study Guide

3742 Dual Data Station
Basic Operator Training

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Preface

This course has two major units of study.

Unit 1, *Machine Familiarization,* consists of Sessions 1 through 5.

In Unit 1 you will become familiar with the use of the keyboard and the display unit. You will learn how to insert and remove a diskette, and you will learn the data processing terms and concepts associated with the 3742.

Unit 1 will also introduce the forms used for the source information in the machine exercises.

Unit 2, *Machine Utilization,* consists of Sessions 6 through 10.

In Unit 2 you will learn how to prepare and use the machine for production work.

You will also learn how to use the machine to verify the accuracy of data on a diskette, and how to add, change, or delete data on a diskette.

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Contents

Introduction

After completing this course you should be able to do the following:

1. Use the ENTER, UPDATE, and VERIFY modes of operation under program control.
2. Use the Search EOD and Search Address functions.
3. Add, delete, or change records on the diskette.
4. Use the Operator's Guide as a reference document.
5. Use diskettes containing multiple data sets.
6. Write data set labels on the index track.

The remaining features of the 3742 are taught in the 3742 Advanced Operator Training course, IBM course code A3742.

In the 3742, as with any machine, your speed and accuracy can best be developed by using the machine for production work. This course is designed to teach you how to use the basic functions only, and it does not contain drill type exercises to develop speed and accuracy.

The machine exercises used in this course are not tailored for specific data processing applications, therefore you will need on-the-job training to use the 3742 for the jobs done in your office.

The course is designed so that you may proceed at your own rate with little or no assistance. However, because each student's learning experiences are different, an advisor should be available to answer any questions or assist with any problems. The advisor must prepare the diskette for student use.

The INSTRUCTIONS TO THE ADVISOR are in the back of this book.

Student Prerequisites

This course assumes that you are an experienced typist with reasonable typing skills. It also assumes that you are familiar with the commonly used typing terms.

Final Examination

The final examination for this course consists of a series of machine problems designed to let you test your own understanding of the machine operation.

Instructions to the Student

In order to proceed with this course you will need the following items:

3742 Data Station BASIC Operator Training course (this book).

1. 3742 Data Station Operator's Guide, Form Number GA21-9136.
2. A student diskette.
3. An IBM 3742 Machine.
4. An advisor (Instructions for the advisor are in the back of this book.)

This course is presented in sets of instructions, questions, and answers called *frames*. Each question is followed by the correct answer. The technique for proceeding through the course is as follows:

1. Use a piece of paper to cover the correct answer to each question. Place the paper on this page so that all you can read is the following sentence. Then move the paper down the page until you uncover three *'s (* * *).

Good. Now move the edge of the card down to the next set of *'s.

* * *

2. Correct. As you move the card down the page you uncover new material. Move to the next set of *'s.

* * *

3. Whenever you are asked a question, answer it to yourself. *Do not write in this book.*
Question: What is 2 + 2?
After you have answered to yourself, check your answer. *Move* the paper *down* to the next row of *'s and check your answer here.

* * *

4

4. When you see a line you are to answer in as many words or symbols as necessary. Remember: Do not write in this book.

An hour has 60_____. 10 + 12 = _____.

* * *

minutes, 22

At various points in the learning sessions you will be given machine exercises to perform. These exercises are designed to give you practice in using the keys, switches, and machine functions that are presented.

You will also be directed to read about machine functions in the 3742 Data Station Operator's Guide.

5. During the learning sessions of the course you will be given _____to perform, and you will be directed to read about machine functions in the 3742 Data Station, _____.

* * *

Machine exercises,
Operator's Guide

At the end of each session are self-evaluation questions that you should answer. If your answer does not agree with those given, reread the session to determine why.

6. Where are the self-evaluation questions located?

* * *

At the end of each session.

The words BREAK POINT have been inserted at various points in the text. Break points occur where the learning process will be least interrupted by taking a break. Naturally the end of each session also represents a convenient break point. If you need to stop, try to do it at a BREAK POINT.

BREAK POINT

In the back of the book there are the following:

- An Index
- A list of quick reference charts
- A list of all machine exercises

Turn to the back of the book and locate them then return to this point.

7. What is the first listing in the Index?

* * *

Adhesive labels.

UNIT ONE

MACHINE FAMILIARIZATION

Session 1: Introduction to Data Processing Terms and Concepts

Session 2: 3742 Introduction

Session 3: Index Mode, Enter Mode, Diskette Addressing

Session 4: Flashing Display Screen Errors

Session 5: Source Documents

Session 1: Introduction to Data Processing Terms and Concepts

Introduction

As a data station operator, your job will include recording data for input to a data processing system.

Normally you will not need to understand a complete data processing system to perform your job, but you should understand certain terms and concepts that will be used.

This session will also describe how the 3742 operator's job relates to the Data Processing System, and it will give you an introduction to some of the machine components.

The topics presented in this session are:

1. An introduction to the basic components of the 3742.
2. Definition of the following terms

    - Data Processing
    - Source Information
    - Source Document

3. A generalized explanation of the 3740 Data Recording System.
4. The IBM Diskette.

The session requires approximately 20 minutes to complete.

The 3742 Keyboard and Display Screen

The 3742 uses a keyboard and a display screen.

The keyboard is similar to the standard typewriter. The arrangement of the letters is identical, but numbers have been placed on the right side instead of across the top as on a typewriter. This arrangement makes it easier to use when there are a lot of numbers. Another difference is the special symbols on the top of each key. In this machine the letters are standard, and a Shift key will be used to type the special symbols and the numbers.

To the left of the keyboard is a small TV-like display screen. The 3741 uses this unit, instead of paper, to show you the letters, numbers, and symbols as you type them in. One of the useful features of the 3741 is that you do not need an eraser to correct a typing error (typo). Because it works electronically it is a simple procedure to backspace and retype a typo.

1. Where are the numbers located on the keyboard?

* * *

On the right side

2. To use the special symbols, what type of key must be pressed?

* * *

The Shift key

3. To use the numbers, what type of key must be pressed?

* * *

The Shift key

4. What does the 3742 use instead of paper?

* * *

A TV-like display screen

5. How are typos corrected on the 3742?

* * *

By backspacing and retyping

As you look at the 3742, you will notice that it has a number of switches and keys that are not on a typewriter. Each of these will be explained in later sessions.

Data Processing Terms

As you study and work with the 3742 the terms *data processing, source information, source data, source document,* and *data recording* will be used. They have the following meanings:

Data Processing

Data processing is a series of operations designed to use one type of information to obtain another. For example, the information from employee time cards could be put into the computer for use in preparing employee pay checks.

Source Information (Source Data)

The 3742 operator's job is to read the information from a sheet of paper or from a report form, and type it into the machine. The information on the sheet of paper or the report form is called *source information.* In the 3742, the information that the operator is given to type into the machine is called source information. (Source information is also called data, or source data.)

Source Document

The sheet of paper or report form that contains the source information is called the *source document.*

Data Recording

The manual typing of information into the machine is called *data recording* because the data is recorded in the machine.

Source Information for This Course

The source information used in the machine exercises will be designed for use only in this course. Your supervisor or advisor can show you the type of source information that you will use in your job.

6. What is data processing?

* * *

A series of operations designed to use one type of information to obtain another.

7. What is the name given to the information that the operator types into the machine?

* * *

Source information.

8. The act of typing information into the 3742 is called_____.

* * *

Data recording.

9. Give an example of source information.

* * *

Employee time cards.

The IBM Diskette

The IBM diskette used with the 3742 is a small round disk-like recording medium. It is similar in appearance to a 45 RPM record in its jacket.

The diskette is inserted into the 3742, and the data is magnetically recorded on it. The recording surface of the diskette is the same type of material that is used in the magnetic tape, and each diskette is reusable.

The 3740 Data Recording System

The 3742 is one of a series of machines called the 3740 Data Recording System.

The machines in a 3740 Data Recording System are used to prepare source information for input to an IBM computer.

Figure 1-1 shows the source information being typed into the 3742 where it is magnetically recorded on an IBM diskette. After all of the information for the job has been recorded, the diskette is removed from the machine and inserted into the 3747 Data Convertor. The 3747 machine reads the information from the diskette and converts it to magnetic computer tape. The magnetic tape is then removed from the 3747, and sent to the computer where it is used to generate the appropriate reports for the job.

Your job as the 3742 operator will be to type the information into the machine, then remove the diskette and give it to the 3747 operator.

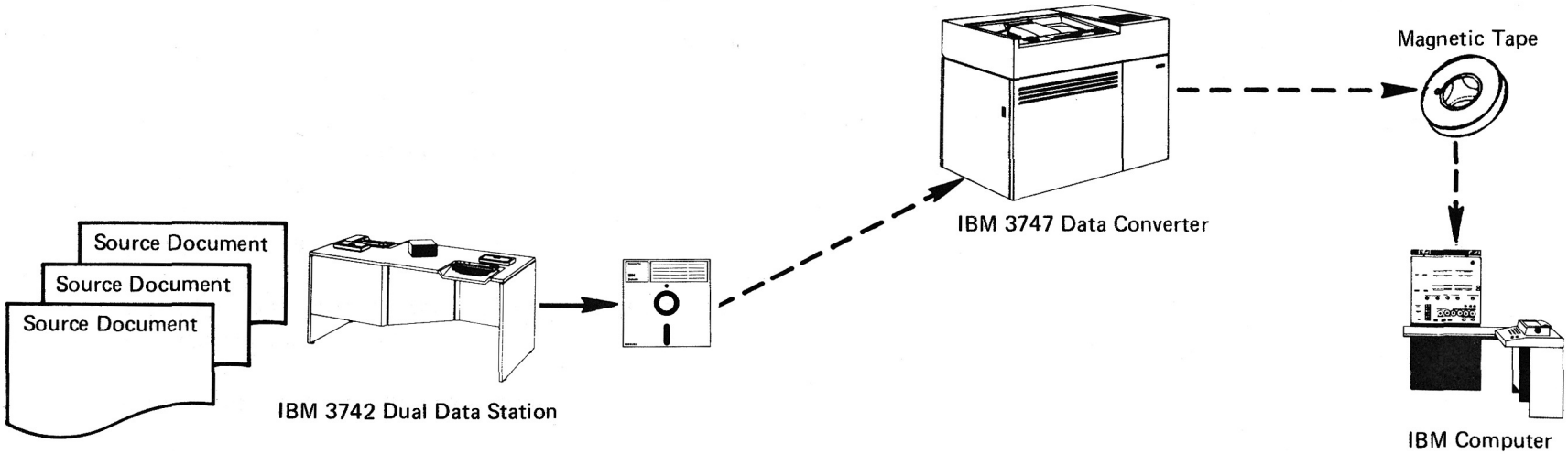


Figure 1-1

10. When is the diskette sent to the 3747?

* * *

After all of the source information is recorded onto it.

11. What is produced by the 3747?

* * *

A magnetic tape.

12. What happens to the magnetic tape produced by the 3747?

* * *

It is sent to the computer for processing.

Self-Evaluation Questions

Answer the following self-evaluation questions, then go on to the next session. The answers follow the last question.

1. Where will you see the letters, numbers, and special symbols on the 3742?

2. How are typing errors corrected on the 3742?

3. Match the following definitions with the most correct terms. (Not all terms will be used)

DEFINITIONS	TERMS
1. _____ A series of operations designed to use one type of information to obtain another.	a. Data Processing
2. _____ Information that the 3742 operator reads and types into the machine.	b. Data Recording
3. _____ The act of typing information onto a diskette.	c. Data Subscription
	d. IBM Machines
	e. Source Information

Answers to Self-Evaluation Questions

1. On the TV-like display screen.
2. By backspacing and retyping the correct information.

3. 1 = a.
   2 = e.
   3 = b.
   Terms c and d were not used.

Session 2: 3742 Introduction

Introduction

In this session you will learn how to insert a diskette into the machine, and how to recognize the two machine malfunction indications.

You will also use the Operator's Guide to read about correct diskette handling. Machine exercises are included so that you can type information into the machine to get a feel for the keyboard.

The topics presented in this session are:

1. Machine malfunctions:
   - Continuous buzzing sound
   - Flashing display screen
2. Using the Operator's Guide
3. External (adhesive) labels
4. Diskette handling
5. Keyboard arrangement and the following keys:
   - FUNCT SEL
   - CHAR ADV
   - CHAR BKSP
   - SPACE bar
   - REC ADV
   - NUM SHIFT
6. The Cursor, and the cursor position field in the status line.
7. The following terms are described:
   - FIELD
   - CHARACTER
   - KEY, KEYING

This session requires approximately 60 minutes to complete.

Using the Operator's Guide

The 3742 Operator's Guide is a valuable tool for your use in operating the machine. The guide describes the operation and the function of each key, switch, and error condition.

Throughout the course you will be directed to sections of the Operator's Guide for reading assignments. The Table of Contents in the front of the book will give the location of any information you are to read.

Become as familiar as possible with the Operator's Guide. This will aid you in completing the course, and it will be of invaluable assistance in your day-to-day operation of the machine.

Reminder

As you read the questions, cover the answer, think of what your answer will be, then uncover the answer and compare it to yours. If your answer does not agree, reread the preceding information to determine why.

1. Where do you look to find the page number for any topic in the Operator's Guide.

* * *

In the table of contents.

To illustrate how the Operator's Guide can be used, locate the section titled *Insert and Remove Diskette,* Read the page titled *Diskette Handling,* then return to this point in the student guide to continue.

2. When not using the diskette, what should it be kept in?

* * *

The cardboard envelope it came in.

3. Why should you keep fingerprints off of the recording surface of the diskette?

* * *

To prevent disk errors.

Damaged or Contaminated Diskettes

If a diskette is physically damaged by being torn, folded, or creased, it should be replaced. If the recording surface becomes contaminated with foreign material, the diskette should not be used. It is particularly important that you don't insert diskettes into the 3742 that have been contaminated with sticky fluids such as soft drinks, coffee with sugar, etc. or abrasive substances such as metal filings, etc. This could damage the equipment and, in turn, cause operation errors.

Storing Diskettes

Diskettes should be stored upright in the protective envelope. The stiff cardboard box (fivepack) in which the diskettes are shipped is excellent for storage. If the environment is dusty or the diskettes will be stored for a long time, put the rack in a closed cabinet to avoid contamination from dust or dirt.

4. Is it permissible to use diskettes that have been physically damaged, or that have been contaminated by coffee or other sticky fluids?

* * *

NO. They should be replaced.

5. In what position should diskettes be stored?

* * *

In the upright position.

External Labels On The Diskette

Removable adhesive labels are frequently placed on the diskette just to the right of the IBM label (Figure 2-1). The information in these labels will be determined by your supervisor, and will generally include the name of the job that the diskette is to be used for, and a warning about how long it should be saved before being reused.

Each time you insert a diskette into the machine you should read the information on the adhesive label to determine if it is the correct one to use for the job you are about to do.

If you are uncertain whether a diskette is available for use, check with your supervisor or course advisor before you insert it in the machine.

6. What should you look at to insure that you have the correct diskette for a job?

* * *

The adhesive label.

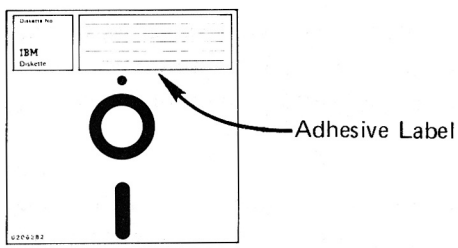


Figure 2-1

Inserting the Diskette

To prepare the machine for operation, you turn the power switch on and insert a diskette into the disk unit. Locate these on Figure 2-2.

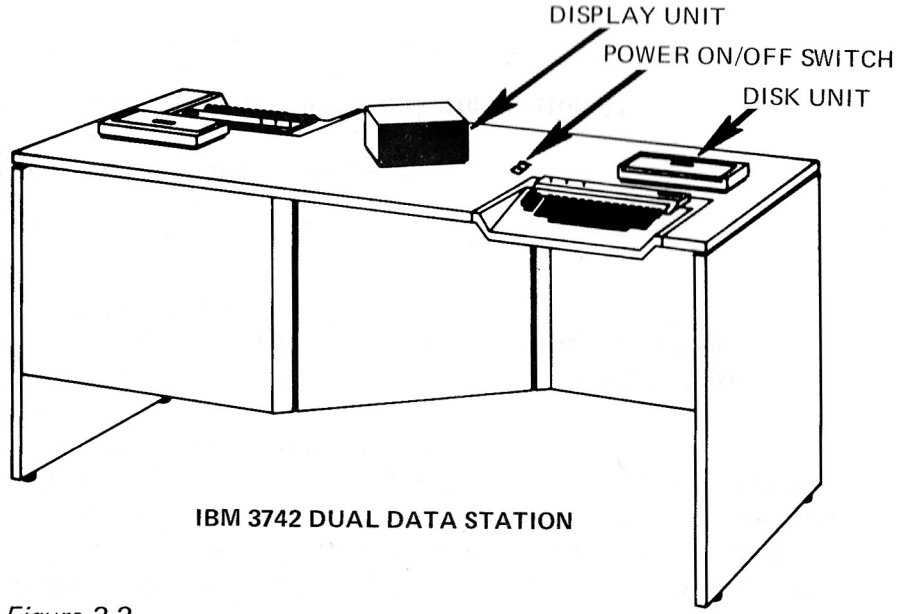


Figure 2-2

When you insert a diskette into the machine, it is important that you use a firm, steady pressure to close the cover. *Do not* hold down on the latch in the middle of the cover when you push the cover closed.

When the cover is closed, you will hear a clicking sound. If the cover closed properly, the buzz will be short. If the cover did not close properly, you will hear a steady buzzing sound indicating a machine malfunction. If this occurs, you should open the cover and close it again. If the buzzing still persists, turn the power switch off and ask your advisor for assistance.

7. When will you hear a short buzzing sound?

* * *

When the diskette is properly inserted.

8. What should you do if you hear a continuous buzzing sound?

* * *

Open the cover and reclose it with a firm steady push. If the buzzing persists, turn the power off and ask for help.

Additional information concerning the continuous buzzing sound is given in session three.

Your operators guide contains a description of how to insert a diskette. Locate the section entitled *Insert and Remove Diskette*, and look at the pictures showing *How to Insert the Diskette,* then return to this point in the student guide.

9. What should you do before inserting the diskette?

* * *

Remove it from the cardboard envelope.

10. How do you open the cover on the disk unit?

* * *

Press the button in the center of it.

11. In which position should the IBM label be when you are inserting the diskette?

* * *

Upper left corner.

12. Should you hold the button down while pushing the cover closed?

* * *

NO.

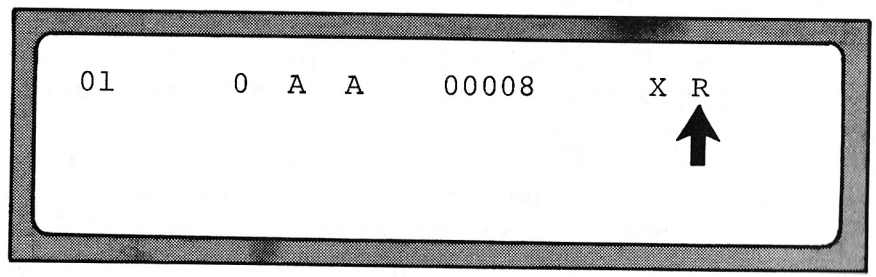
Machine Exercise 2-1: Machine Ready Indicators

This exercise is designed to allow you to see the R in the top line of the display unit, and to hear the momentary buzz.

Directions

1. Turn the power on.
2. Insert the student diskette.
3. Note the momentary buzz.
4. END OF THE EXERCISE. Leave the diskette in the machine.

The display unit contains another indicator that the diskette was properly inserted, and that is the R in the last position of the top line. This R indicates that the machine is READY for operation.

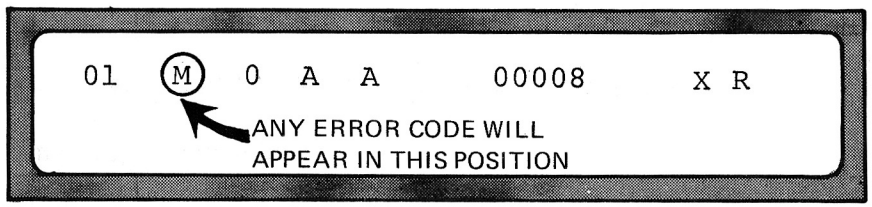


Machine Malfunctions (Errors)

Earlier you learned that one type of machine malfunction indication was a continuous buzzing sound. This buzz is always associated with inserting or removing a diskette.

The other type of malfunction indicator on the 3742 is a Flashing Display screen. This type of indication will occur when you press an incorrect sequence of keys.

When the display screen starts flashing, a one-position error code will appear near the left end of the top line on the display. This code will be a letter or a number depending on the type of error.



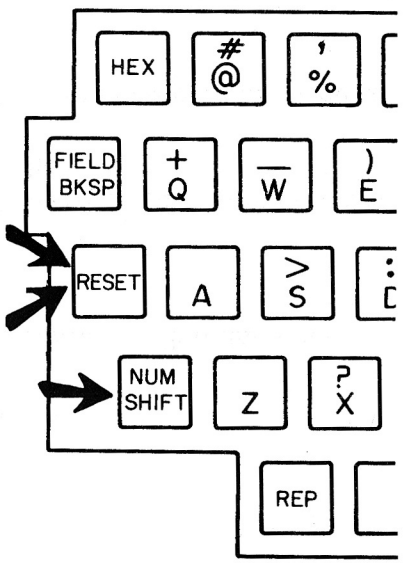
If an error occurs, check the code to determine if it is a letter or a number.

Letter Errors

If the error is a letter, press the RESET key, then continue by re-typing the correct information.

Number Errors

If the error code is a number, hold down the NUM SHIFT key, and press the RESET key. Then continue with the correct information.



What To Do If An Error Occurs

During these first early sessions of the course, if you get a flashing screen error, simply determine if the error code is a number or a letter, then reset it by using the correct key(s). If you are unable to continue after resetting the error condition, restart the exercise with step 1.

In a later session you will be told how to interpret each of the error codes, and how to restart without going back to step 1 each time.

13. What are the two types of machine malfunction indications in the 3742?

* * *

A continuous buzz, and a flashing display screen.

14. The continuous buzzing is associated with what type of operation?

* * *

Inserting or removing the diskette.

15. How can you tell what the error code is when the display unit flashes?

* * *

By the letter or number in the left of the top line.

16. How do you reset a letter type error?

* * *

Press the RESET key.

17. How do you reset a number type error?

* * *

Hold down the NUM SHIFT key, and press the RESET key.

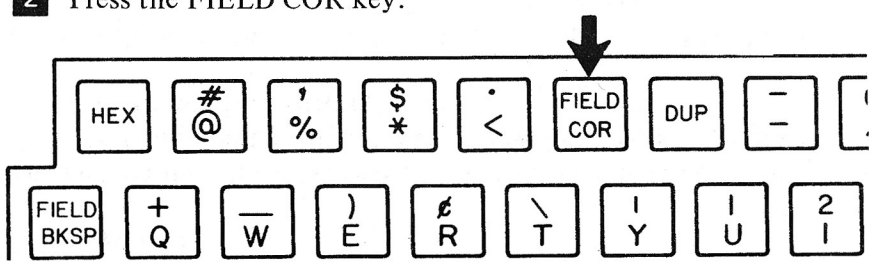
Machine Exercise 2-2: Flashing Display Errors

In this exercise you will force an error to occur so you can observe the flashing display screen and the error code, then reset the error indication.

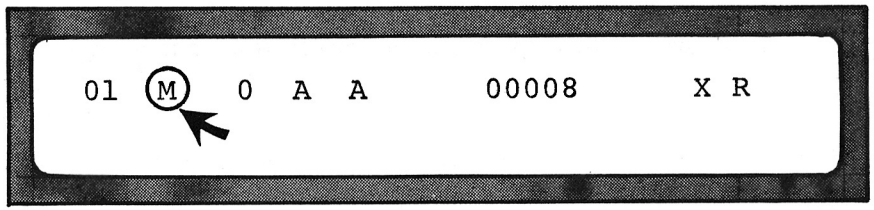
Directions

1 Insert a diskette.

2 Press the FIELD COR key.



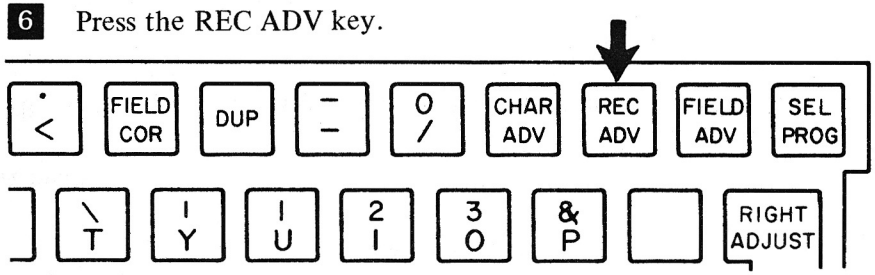
3 Look at the top line on the flashing display screen, and note the 'M' error code.



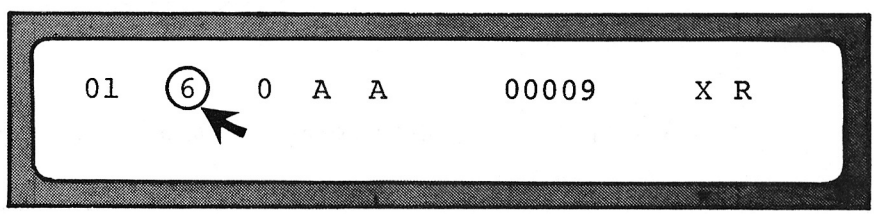
4 Reset the error.

5 Open the disk unit cover, then close it.

6 Press the REC ADV key.



If your diskette was properly prepared, the display unit should be flashing, and a '6' error code should be in the top line.



If there is no error, skip step 7.

7 Reset the error by using the correct sequence of keys.

END OF THE EXERCISE

The Keyboard

The keyboard on the 3742 is used for multiple purposes. It has all of the letters and numbers of a typical typewriter, and it has numerous keys that are used for special functions.

Look at the keyboard and note that each of the letter keys has a symbol or a number at the top. There are a few exceptions to this. The A and Z keys have nothing on top of them, and in the top left row the @ % * ⟨ keys have only special symbols.

In this machine there is no upper or lower case as you know it on a typewriter; instead there is a Numeric and an Alphabetic shift.

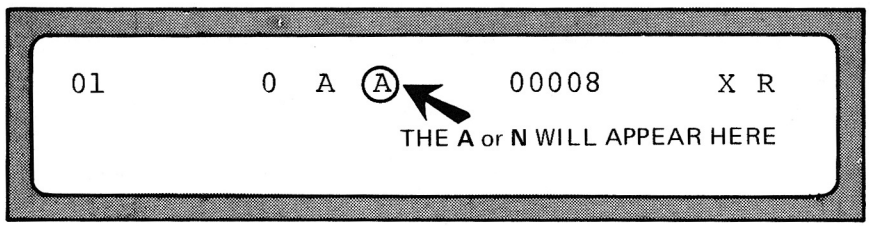
When the machine is in Alphabetic shift the letters or symbols on the *bottom* of the keys are active.

When the machine is in Numeric shift the symbols or numbers on the *top* of the keys are active.

The normal shift for this machine is Alphabetic, so you must press the NUM SHIFT key to use any of the symbols or numbers on the top of the keys.

As mentioned before, the A and Z keys have nothing on the top of them. If they are pressed while the machine is in Numeric Shift, it will cause a flashing display error.

Any time you wish to see what shift the machine is in, look at the top line of the display unit for the letters A or N indicating Alphabetic or Numeric shift.



The top line of the display screen is called the machine status line, and as you have seen it is used to tell about various machine conditions.

Later you will learn about the remaining positions that you see in the status line. From now on in the course we will refer to the top line as the *status* line.

18. What are the two keyboard shifts used in this machine?

* * *

Alphabetic, and Numeric

19. Which is the normal shift for this machine?

* * *

Alphabetic

20. If you press the A or Z key while in Numeric shift what will happen?

* * *

A flashing display error will occur.

21. Which shift key would be used for the dollar sign?

* * *

Numeric

22. What is the name of the top line on the display screen?

* * *

The status line.

23. How can you tell what shift the machine is in?

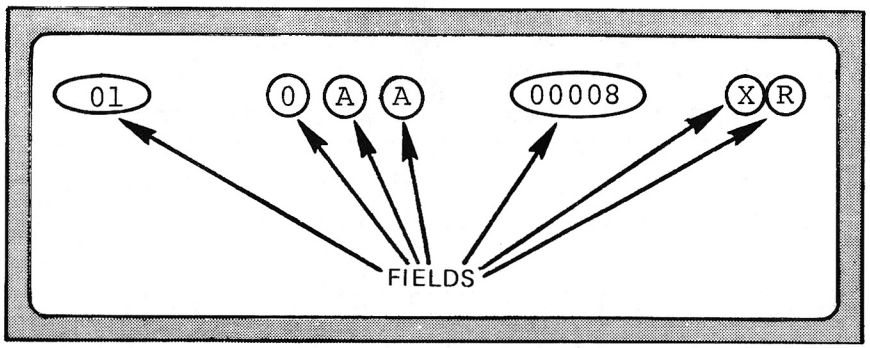
* * *

Look at the correct position of the status line.

Defining the Term "Field"

The term *field* when used with the 3742 has the following meaning: A field is one or more related characters.

For example, in the status line on the display unit there are groups of characters in these positions. Each group is referred to as a *field.*



The term *field* is used when referring to information that you see in the status line, in the data positions of the display screen, and when referring to source information.

FUNCT SEL (Function Select) Keys

Many different functions can be performed on the 3742. Each of these functions is initiated by pressing a key on the keyboard.

To reduce the number of keys required, the keys on the top row are given multiple uses by pressing either of the two FUNCT SEL keys at the left of the top row. (See Figure 2-3.)

When either of the FUNCT SEL keys is pressed, the top row of keys can be used to select the functions that are printed directly above the keys.

The top row of functions are called the upper functions, and the left FUNCT SEL key is called the Function Select upper key.

The bottom row of functions are called the lower functions, and the right FUNCT SEL key is called the Function Select lower key.

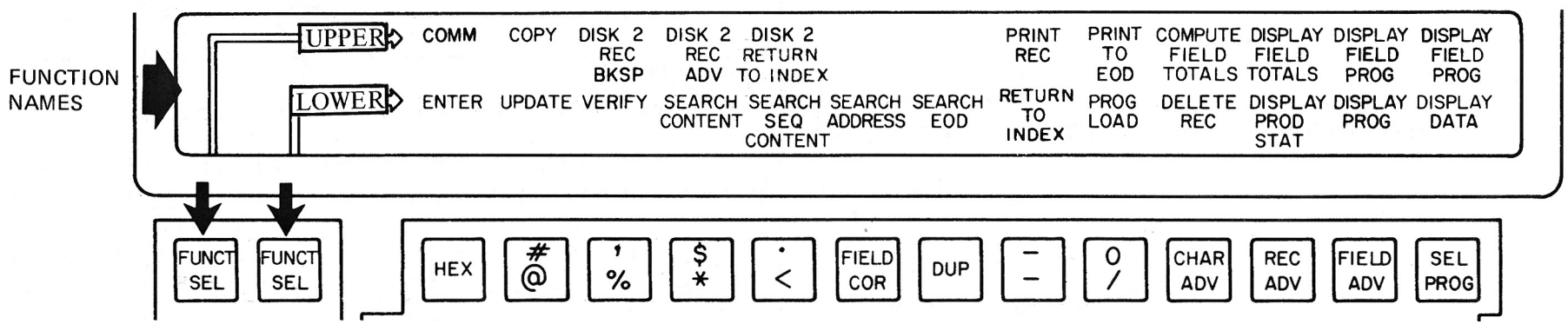
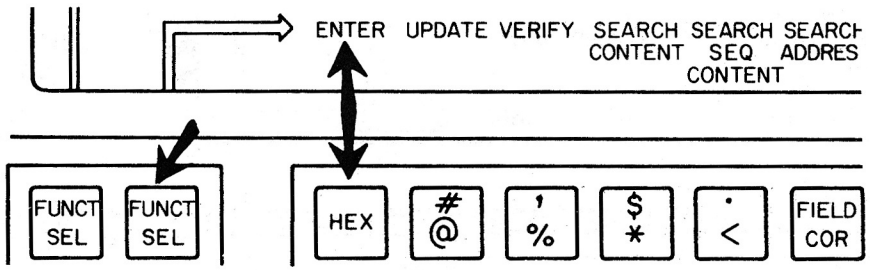


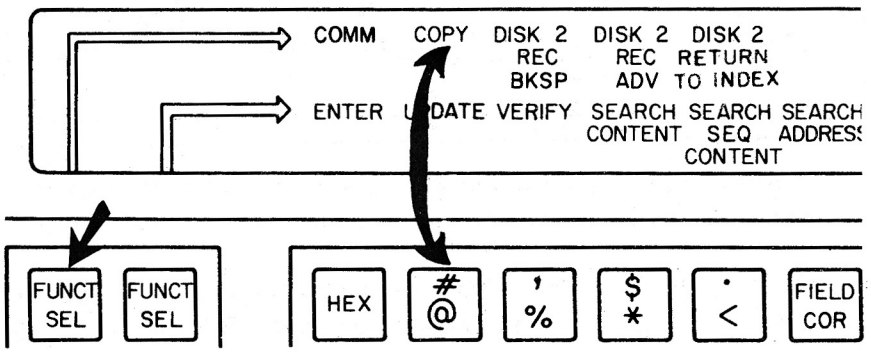
Figure 2-3

To select any of the machine functions, press the appropriate FUNCT SEL key, then press the key in the top row that is directly below the desired function. (Note, do not press any keys until you are directed to do so in an exercise.)

For example, if you wished to select the ENTER function, you would press the FUNCT SEL lower (white letters) then the HEX key.



If you wished to select the COPY function you would press the FUNCT SEL upper (green letters) then the @ key.



During the machine exercises in this course, when you are to select any of the machine functions, you will be given the function's name. You can then press the appropriate FUNCT SEL key and the corresponding key directly below the function name.

24. Which key(s) do you press to cause the top row of keys to serve a different function?

* * *

The FUNCT SEL keys.

25. Which FUNCT SEL key would be pressed for the PROG LOAD function?

* * *

FUNCT SEL lower (white letters)

26. After the FUNCT SEL LOWER key is pressed, which key would be pressed next for the PROG LOAD function?

* * *

The slash (/) key.

27. Which FUNCT SEL key would be pressed for the COMPUTE FIELD TOTALS function?

* * *

FUNCT SEL upper (green letters)

28. After pressing the FUNCT SEL UPPER key, which key would be pressed for the COMPUTE FIELD TOTALS function?

* * *

The CHAR ADV key.

Characters and Keying

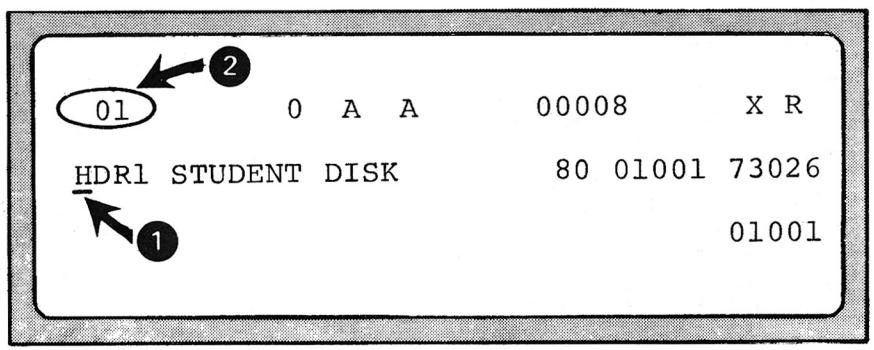
In this machine the letters, numbers, and symbols are also called characters. Another interchangeable term is *keying.* In this machine the word key or keying means the same as type or typing.

The Cursor

So that you can tell where each character will go on the display unit, there is a position locator called a CURSOR.

Before starting the description of the cursor, do the following.

Insert the student diskette into the machine, **close the cover** on the disk unit, and **compare the information** on the display screen to the following figure. If the top line is not the same, open then close the cover on the disk unit once.



While reading the description of the cursor, refer to the two items identified by the arrows on the figure.

When you type information on a typewriter, you can tell where you are by looking at the position of the pointer on the front of the typewriter.

In the 3742 there is no paper, but there is a pointer, and there are some numbers to tell you where you are.

Look at the display screen and note the line below the H (arrow 1 in the figure) that looks like an underscore. This is called the *cursor,* and it points to the next position to be used. Next look at the far left of the status line (arrow 2 in the figure). This three-digit field always tells you where the cursor is located.

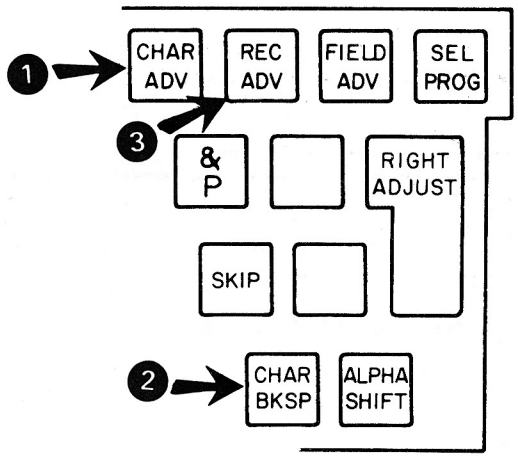
As you can see, the numbers are 01. This indicates that the cursor is in position 1.

As you key each character into the machine, the cursor will automatically advance to indicate the next position to be used, and the two-digit position indicator field will increase by one to tell you where the cursor is located.

When you are keying information into the machine it is very important that each character is placed into the correct position. To ensure that they are, you should refer to the position indicator field, and/or the cursor to determine where the next character will go.

The CHAR ADV, CHAR BKSP, and the REC ADV Keys

There are three more keys that you need to know about before you start using the machine.



The first two are the CHAR ADV (character advance), and the CHAR BKSP (character backspace) keys. These two keys are used to move the cursor forward and backward. By using them you can reposition the cursor to correct any typing mistakes.

The third key is the REC ADV key. As you will see, the display screen on the 3742 can contain only a limited amount of information. After you have keyed in as much as you are directed to, you will press this key to clear the display screen.

29. How can you tell where the next character that you key will appear on the display screen?

* * *

By locating the cursor, and by referring to the 3-digit indicator field in the status line.

30. What name is used to refer to letters, numbers, and symbols?

* * *

Character.

31. What word means the same as "typing" on the 3742?

* * *

Key, or keying.

32. Which keys are used to move the cursor forward and backward on the display screen?

* * *

CHAR ADV and CHAR BKSP

33. After you key in the information, which key do you press to clear the display screen?

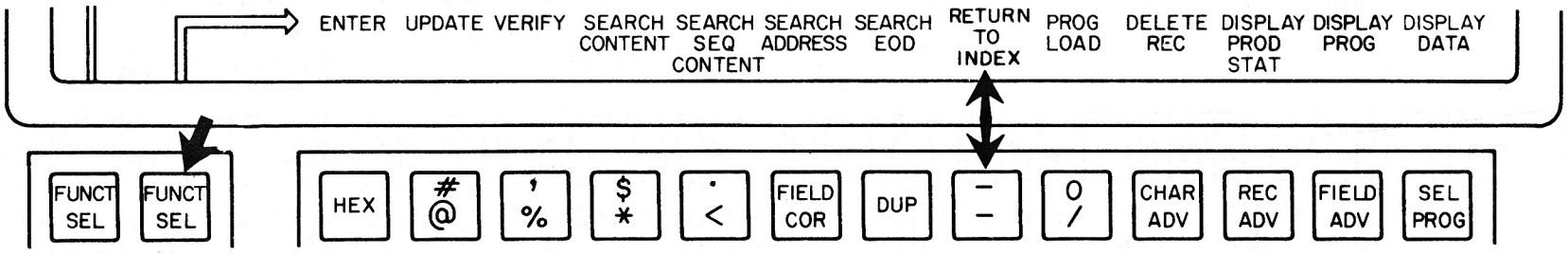
* * *

REC ADV.

Machine Exercise 2-3: Using the Keyboard and Display Screen

In this exercise you will key the information given to you. As you key the information, notice that only 40 characters appear on each line of the display. Also you should note how the cursor moves across the display screen to indicate the next position to be used.

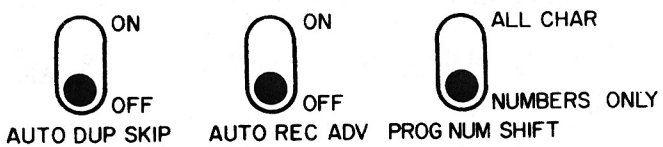
If you encounter a problem that you cannot correct, press the FUNCT SEL lower key, the RETURN TO INDEX function key, then open and close the cover on the disk unit and restart the exercise at step 1.



Directions

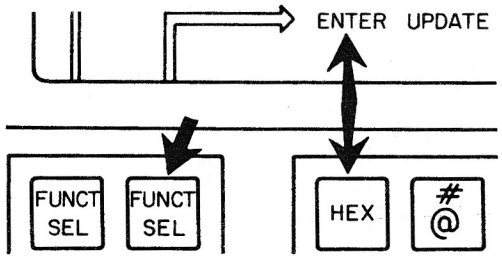
(REMINDER. Read through each step before you start to do it.)

1 Set the switches at the top of the keyboard to the positions shown.



Continued on next page.

2 Select the ENTER function.



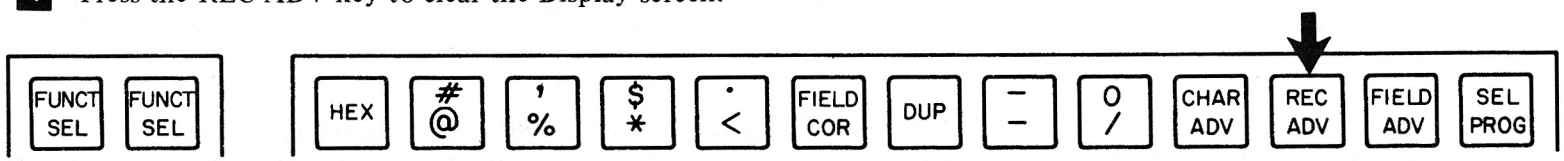
3 Key the following information into the display unit. (Use the Space bar to type in blank characters.)

Note. The numbers in each block indicate the positions that the character will be typed into.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
N	O	T	I	C	E		T	H	A	T		T	H	E	R	E		A	R	E		4	0		C	H	A	R	A	C	T	E	R	S		O	N		E

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A	C	H		L	I	N	E	,		A	N	D		T	H	E		M	A	X	I	M	U	M		N	U	M	B	E	R		I	S				8	0

4 Press the REC ADV key to clear the Display screen.

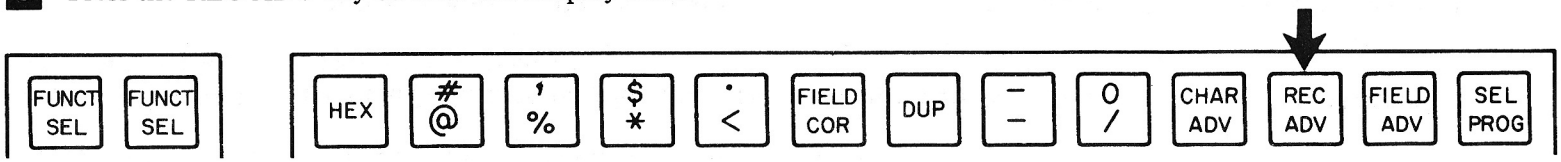


5 Key the following information into the Display unit.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
H	O	L	D		D	O	W	N		T	H	E		N	U	M		S	H	I	F	T		K	E	Y		T	O		T	Y	P	E		T	H	E	S

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
E		S	Y	M	B	O	L	S			#		$		-		+		¢		&		>		_		?		=		Ø		1		6		8		

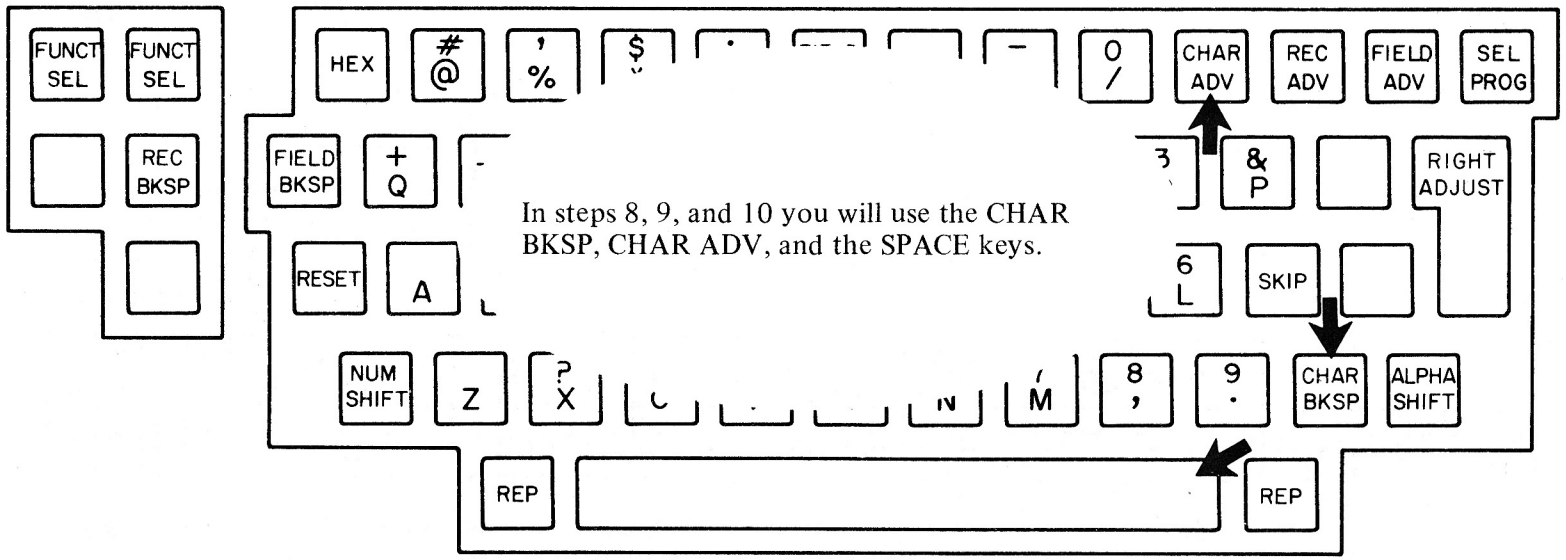
6 Press the REC ADV key to clear the Display unit.



7 Key the following information into the Display screen.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
T	Y	P	E		I	N		A	L	L		O	F		T	H	E	S	E		L	E	T	T	E	R	S	.										

Continued on next page.



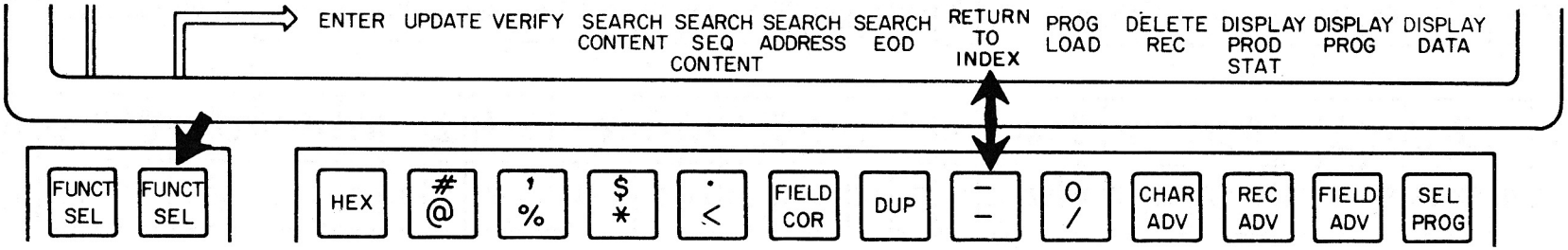
8 Press CHAR BKSP to position the cursor at position 9 on the display unit.

9 Next press the SPACE bar enough times to position the cursor at position 16. Note that blanks replace the letters 'ALL OF' that were in positions 9 through 14.

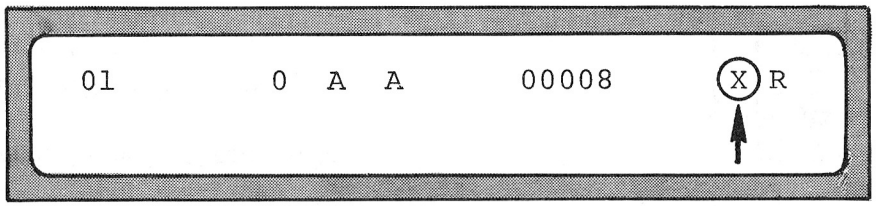
10 Now press the CHAR ADV key to position the cursor at position 30. Note that using the CHAR ADV and the CHAR BKSP keys does not change any characters already on the display screen.

11 Press the REC ADV key to clear the Display screen.

12 Select the RETURN TO INDEX function.



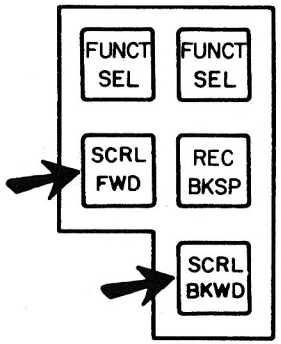
13 Look at the status line on the display screen. When an 'X' appears in the next-to-last position, open the cover on the disk unit.



END OF THE EXERCISE

128 Character Feature

If your 3742 has the SCRL FWD an SCRL BKWD keys on it the 128 character feature is installed. If these keys are not present skip this topic and exercise 2-4, and go directly to the self-evaluation questions.



The 128 character feature allows you to key up to 128 characters into the display screen before pressing the REC ADV key.

Three Display Modes

Because the display screen on the 3742 can only contain 80 data characters at a time, three different display modes are used with the 128 character feature. (See illustrations in right hand column.)

Mode A displays positions 1 through 80.
Mode B displays positions 41 through 120.
Mode C displays positions 81 through 128.

SCRL BKWD and SCRL FWD Keys

After you have keyed sufficient characters to cause a new mode of display, you may redisplay the previously keyed characters by pressing the SCRL BKWD key. To restore the display to its former mode, you press the SCRL FWD key.

A

```
001          0    A  A    10010          E R
------POSITIONS 1 THROUGH 40------------
------POSITIONS 41 THROUGH 80-----------
```

B

```
081          0    A  A    10010          E R
------POSITIONS 41 THROUGH 80-----------
------POSITIONS 81 THROUGH 120----------
```

C

```
121          0    A  A    10010          E R
------POSITIONS 81 THROUGH 120----------
121--128
```

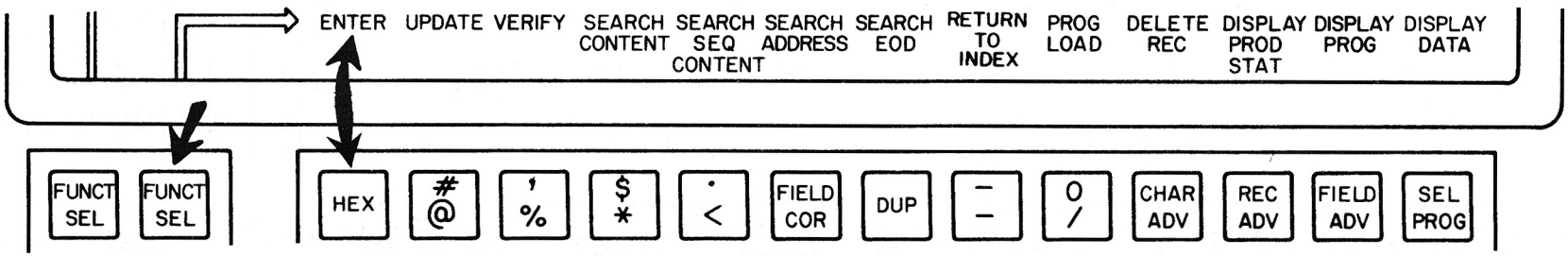
Machine Exercise 2-4: Using the 128 Character Feature

In this exercise you will key 128 characters into the display unit and use the SCRL keys to use the three modes of display.

Directions

1. Ensure that the student diskette is inserted, the disk unit cover is closed, and that the switches are still set to the same positions as in the preceding exercise.

2. Select the ENTER function.



Continued on next page.

3 Key the following information into the display screen and note that as you key in the 41st, the 81st and the 121st character the mode of display changes from A to B then to C. Do NOT press the REC ADV key after keying in the 122 character.

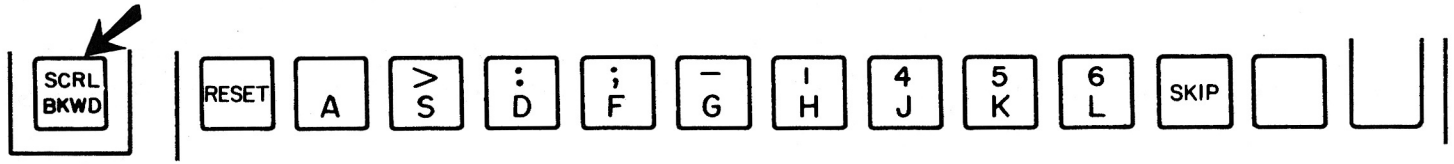
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
N	O	T	E		T	H	A	T		W	H	E	N		Y	O	U		K	E	Y		A		C	H	A	R	A	C	T	E	R		I	N	T	O	

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
P	O	S	I	T	I	O	N		4	1	,		8	1	,		A	N	D		1	2	1		T	H	A	T		T	H	E		D	I	S	P	L	A

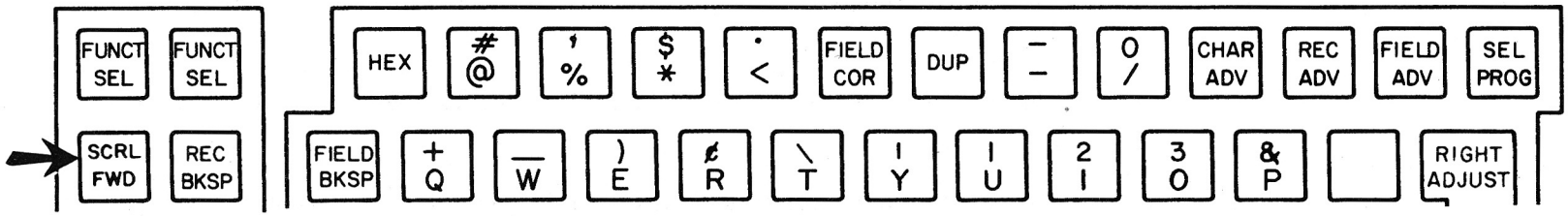
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Y		M	O	D	E		C	H	A	N	G	E	S	.		D	O		N	O	T		P	R	E	S	S		R	E	C		A	D	V				Y

121	122	123	124	125	126	127	128
E	T						

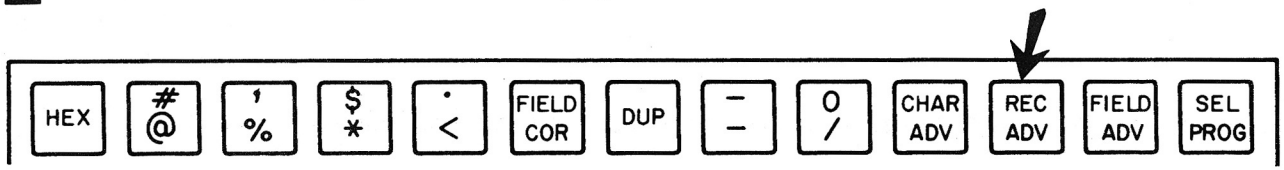
4 Press the SCRL BKWD key twice and note that the display mode changes from C to B to A.



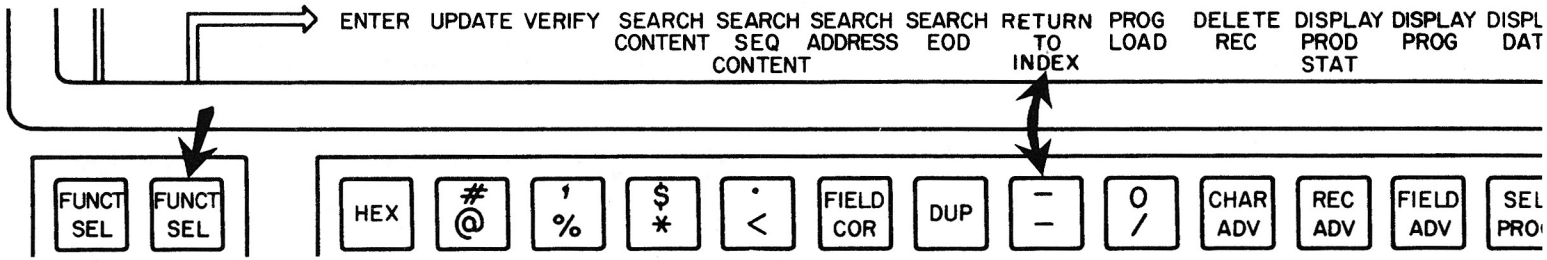
5 Press the SCRL FWD key twice and note that the display mode changes from A to B to C.



6 Press the REC ADV key to clear the display screen.



7 Return the machine to Index mode.



END OF THE EXERCISE

Self-Evaluation Questions

1. Which key(s) is/are used to give the top row of keys extra functions?

2. Which shift key is held down to key in a dollar sign?

3. If the cursor position indicator field in the status line contains the number 005, and you type in a 'B', where will the 'B' appear on the display screen?

4. Which keys are used to move the cursor forward and backward?

5. Which key is used to type blank characters?

6. Which key is used to clear the display screen?

7. How many characters can be typed onto one line of the display screen?

8. What is the maximum number of characters that can be keyed into the display screen? (Using both lines)

9. How can you reset a number type error?

10. How can you determine if a flashing screen error is a letter or number type?

11. Where can you find a description of every key, switch, and machine function?

12. What should you look at before you insert the diskette to determine that you are using the correct diskette for your job?

13. How can you tell which shift the keyboard is in?

14. In this machine, what are the letters, numbers, and symbols called?

15. What is another name for "typing" on this machine?

Answers to the Self-Evaluation Questions

1. The FUNCT SEL (function select) keys.
2. The NUM SHIFT (numeric shift) key.
3. In position five of the first line below the status line.
4. The CHAR ADV, and the CHAR BKSP (character advance and character backspace) keys.
5. The SPACE bar.
6. The REC ADV key.
7. Forty (40).
8. Eighty characters, or 128. If the 128 character feature is installed.
9. Hold down the NUM SHIFT key, then press the RESET key.
10. By the error code, next to the position indicator field, in the status line.
11. In the Operator's Guide Form Number GA21-9136.
12. The External (adhesive) label on the diskette jacket.
13. By looking for the 'A' or 'N' near the middle of the status line.
14. Characters.
15. Key, or keying.

Session 3: Index Mode, Enter Mode, and Diskette Addressing

Introduction

To use the functions of the 3742 the machine must be in the correct mode of operation. The Index mode is the "Starting" mode for the 3742 and the Enter mode is the mode used when recording information onto the diskette.

This session will introduce the use of these two modes of operation.

As information is written onto the diskette, an address is written along with it so that you and the computer can locate each individual entry.

This session will explain how you can determine the address of any specific information on the diskette.

The topics presented in this session are:

1. Modes of operation
   - INDEX mode
   - ENTER mode
2. The following terms are defined:
   - Data
   - Record
   - Data Record
3. Diskette addressing
   - Writing records on the diskette
   - Tracks, and Sectors
   - Index Track
4. REC BKSP (record backspace)

This session requires approximately 45 minutes to complete.

Modes of Operation

The 3742 is a versatile machine that can perform the many types of operations used when recording information on the diskette.

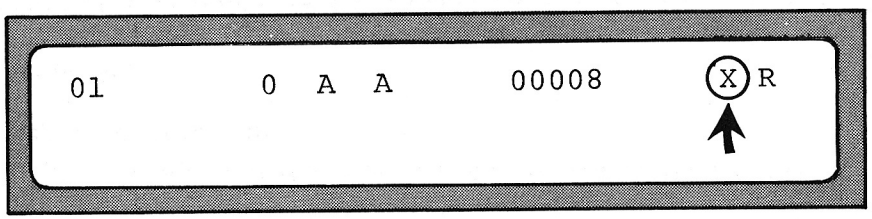
To use the different operations the machine must be properly set up. The initial step in setting up the machine is to place it in the correct mode of operation. In this session you will learn how to identify which mode the machine is in and how to select and use the *Index* and the *Enter* modes of operation.

There are many other modes of operation besides index and enter, that will be taught in later sessions.

Identifying the Machine Mode

You can identify the machine mode by looking at the next-to-last position in the status line. That position will contain a letter to indicate the current machine mode. The letter X indicates Index mode and the letter E indicates Enter mode.

To see this, **insert the student diskette, close the cover** on the disk unit, and **look at the machine mode character in the status line.**



Index Mode

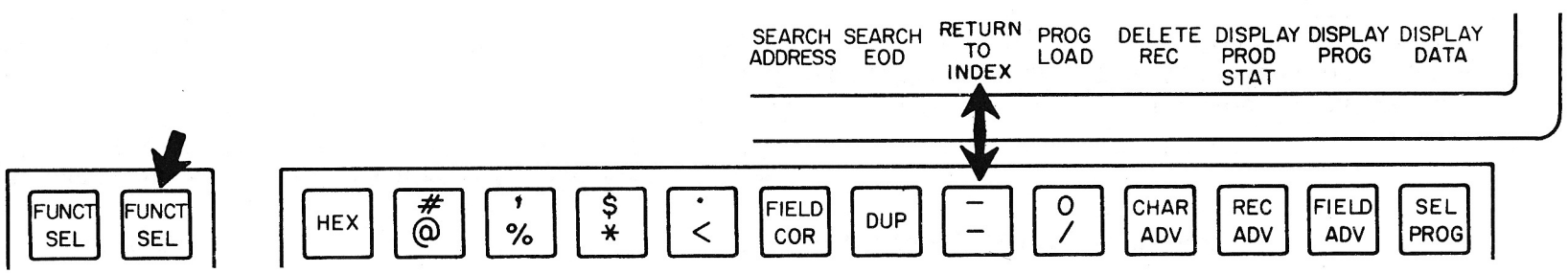
The Index mode is used as the starting point for most machine operations. As you can see, the machine is automatically placed in Index mode when the diskette is inserted. In addition to being the starting point for most operations, Index is the mode selected to end a job (or exercise). As you may recall, the last step of the exercise in Session 2 was to press FUNCT SEL lower, then the RETURN TO INDEX keys. This ended the exercise (job).

Each exercise, or job, that you do on the machine will be ended by returning the machine to Index mode.

Refer to the figure below for the location of the keys.

There are many uses for Index mode but for now you only need to know these uses:

- The machine mode is identified by an 'X' in the status line.
- The machine must be in Index mode to select any other mode of operation.
- The last step in any exercise or job is to return the machine to the Index mode.



Continuous Buzzing Sound

A continuous buzzing sound can occur if you attempt to remove a diskette from the machine when it is not in the Index mode, it will also cause a zero error code in the status line.

Before removing a diskette insure that it is in Index mode.

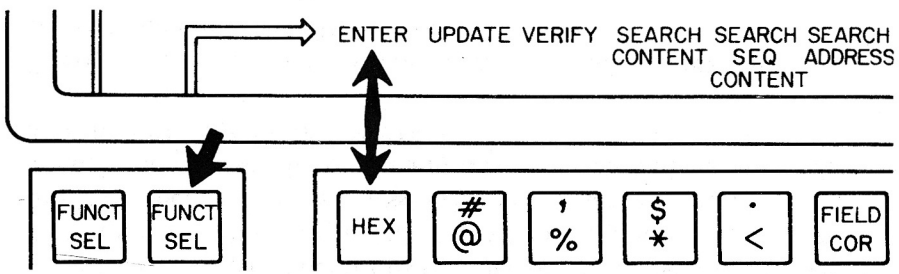
If you inadvertently open the cover on the disk unit and it is not in the Index mode, just close the cover and hold down the NUM shift key while pressing the Reset key.

Enter Mode

The Enter mode of operation is the mode most frequently used in the 3742 because it is the mode used when keying (entering) information onto the diskette.

The Enter mode of operation is selected by pressing the FUNCT SEL lower key and then the ENTER key. The machine will have an 'E' in the machine mode position of the status line when it is in Enter mode. (Do not select ENTER mode at this time.)

Refer to the following figure for the location of the keys used.



For most exercises in this course, you will select the Enter mode of operation to key information into the machine.

Defining the Terms "Data" and "Record"

Data

The term data is used to identify information keyed into the 3724. In this course the term data will be used to refer to the information that you are keying or that you have keyed into the machine.

Record

A record is any related group of characters. For example, in a mailing list each individual Name and Address would be called a record. To clarify it a bit further the following description can also apply. A record in the 3742 is all of the data characters that are in the Display screen when the REC ADV key is pressed. Because the display screen can hold up to 80 characters, the longest record in the 3742 is 80 characters. (If your machine has the 128 character feature installed, the longest record is 128 characters.)

Data Record

A record is also referred to as a *data record.*

1. How can the machine mode be identified?

* * *

By the letter in the next-to-last position of the status line.

2. What mode is selected to end an exercise?

* * *

Index mode.

3. How is Enter mode selected?

* * *

Press FUNCT SEL LOWER, then ENTER

4. Enter mode can only be selected when the machine is in _____mode.

* * *

Index.

5. What happens if you open the cover on the disk unit when not in Index mode?

* * *

The continuous buzzing starts.

6. What mode must the machine be in to write information onto the diskette?

* * *

Enter mode.

7. What is the definition of a record?

* * *

A related group of characters.

8. What is the maximum number of characters that can be in a record in the 3742?

* * *

80, That is the maximum that the Display will hold.
(Note: if 128 character feature is installed, a record may contain up to 128 characters.)

Diskette Addressing

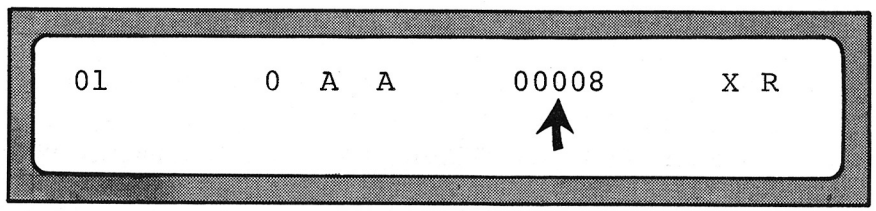
Why Have Disk Addresses?

Every record written on a diskette is given a unique address so that it may be located later. These addresses are used by the IBM computer when processing the data from the diskette. The addresses are used by the 3742 to control machine operation, and they are used by the operator to locate any records that may need to be corrected or changed.

Writing Records Onto the Diskette

As each record is written onto the diskette the machine automatically writes an address with it so the record can be located later when necessary.

The address assigned to each record comes from the five digits in this position of the status line.

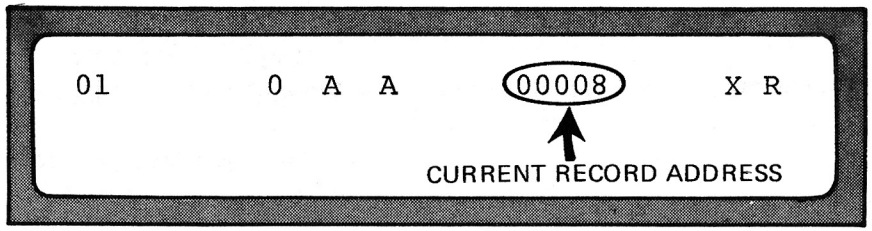


When the machine is in Enter mode these digits represent the address that will be associated with the record you are currently keying into the Display screen. For this reason these five digits are called "The Current Record Address".

Each time you press the REC ADV key, the machine automatically increases this number by one. By doing this the machine is able to assign a unique address to each record on the diskette.

To see the Current Record Address on the status line insert the student diskette (if necessary) then close the disk unit cover.

The machine should now be in Index mode, and the current record address should be 00008.



Reading the Five-Digit Address

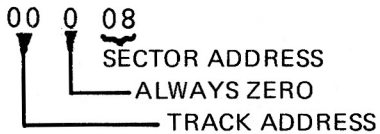
Tracks and Sectors

As each record is written onto the diskette it is placed into a pre-determined position that is called a *sector.*

The sectors on the diskette are separated into groups of 26 and these groups are called *tracks.* The diskette has 74 tracks each containing 26 sectors for a total of 1924 sectors. This is enough room to contain about one day's entries.

Interpreting the Five Digits

The first two digits of the diskette address indicate the track. The last two digits of the address indicate the sector. The middle position is always zero.



The numbers used for the Track address start with 00, and continue through 73. The numbers used for the Sector address are 01 through 26.

Addressing Examples

The examples illustrate how various addresses will appear:

Track zero, Sector eight = 00008
Track one, Sector one = 01001
Track one, Sector twenty six = 01026
Track two, Sector one = 02001
Track ten, Sector one = 10001

Determining Where a Record is on a Diskette

As each record is written on the diskette it is assigned the next sequential address. If you start entering records into Track 01, Sector 01, the first 26 records will all go into track 01. The 27th record would go into the first sector of the next track (02001).

By using this information you could determine that the address for record number 100 would be Track 04, Sector 22.

To prove this check the following addition:

Track 01	= 26	records
Track 02	= 26	records
Track 03	= 26	records
Track 04	= 22	records
Total	100	records

Summary

- Each record occupies one sector on the diskette.
- The 74 Tracks on a diskette are numbered from 00 through 73.
- The 26 Sectors in each track are numbered from 01 through 26.
- The total number of sectors on a diskette is 1924.

- The current record address in the status line is associated with the data that is on the display screen.

- Each time the REC ADV key is pressed the current record address is increased by one.

9. Why are diskette addresses required?

* * *

For use by the IBM computer, and to allow the 3742 operator to locate any record on the diskette.

10. When is the current record address increased by one?

* * *

Each time the REC ADV key is pressed.

11. How many records are written in one sector?

* * *

One.

12. How many characters are included in each record?

* * *

All that are in the data positions of the Display screen (including blanks) when REC ADV is pressed.

13. What are the five-digit addresses for the following tracks and sectors?

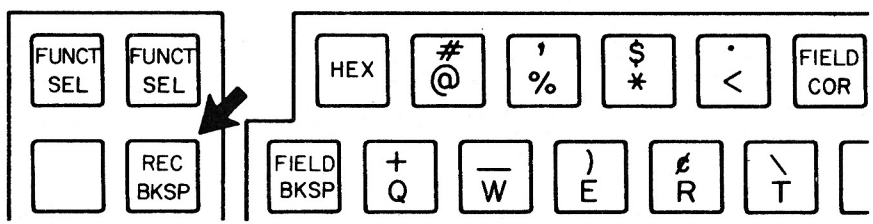
Track one, sector one
Track three, sector ten
Track fifty, sector five
Track seventy three, sector twenty six

* * *

01001
03010
50005
73026

The REC BKSP (Record Backspace) Key

The record backspace key allows you to backspace and look at any previous record on the diskette.



Each time the key is pressed the current record address (in the status line) is decreased by one and the data at that location on the diskette is displayed.

This key may be used during any exercise when you wish to display a preceding record from the diskette.

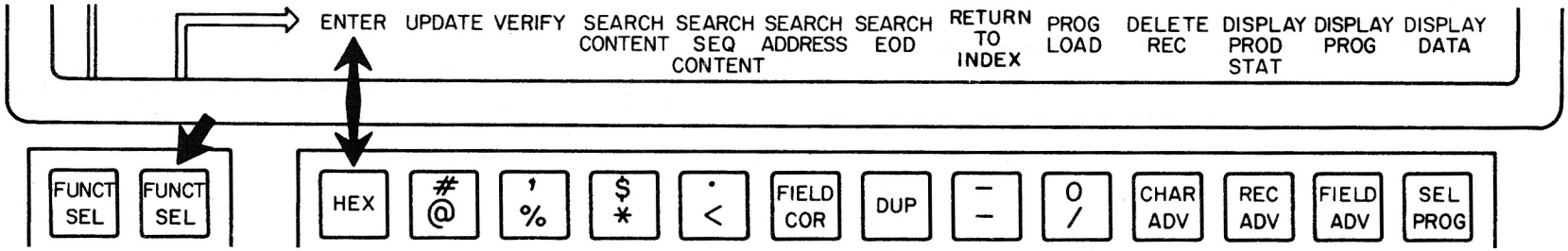
Machine Exercise 3-1: Observing Diskette Addresses

In this exercise you will key 35 16-character records onto the diskette to note the following items:

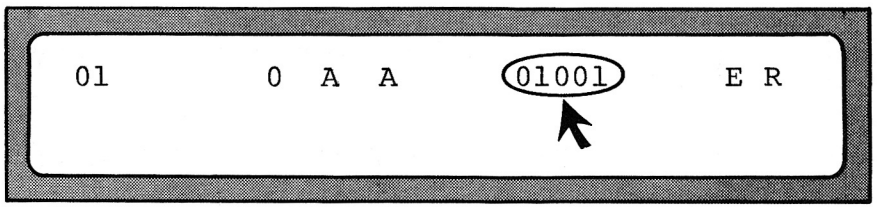
- The first diskette address used is 01001
- When the REC ADV key is pressed the following occurs;
  - The information from the display unit is written onto the diskette.
  - The display screen is cleared.
  - The current diskette address is increased by one.
- As record 27 is being typed the current diskette address is 02001.

Directions

1 Insert the student diskette, and select ENTER mode.



2 Look at the status line. If the current diskette address is not 01001, have your advisor correct the diskette before continuing.

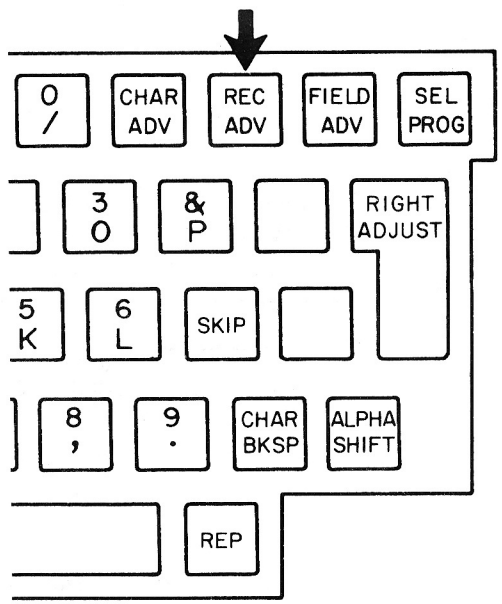


3 Key the following information into the Display screen.

DISK ADDRESS USED		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
01001	1	D	A	T	A		R	E	C	O	R	D		#			1
01002	2	D	A	T	A		R	E	C	O	R	D		#			2
01003	3																3
01004	4																4
01005	5																5
01006	6																6
01007	7																7
01008	8																8
01009	9																9
01010	10															1	0
01011	11															1	1
01012	12															1	2
01013	13															1	3
01014	14															1	4
01015	15															1	5
01016	16															1	6
01017	17															1	7
01018	18															1	8
01019	19															1	9
01020	20															2	0
01021	21															2	1
01022	22															2	2
01023	23															2	3
01024	24															2	4
01025	25															2	5
01026	26															2	6
02001	27															2	7
02002	28															2	8
02003	29															2	9
02004	30															3	0
02005	31															3	1
02006	32															3	2
02007	33															3	3
02008	34															3	4
02009	35	D	A	T	A		R	E	C	O	R	D		#		3	5
	36																

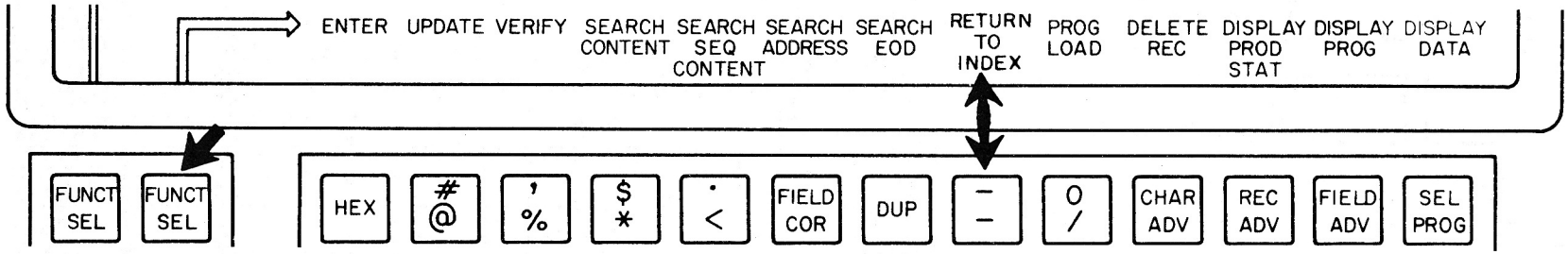
POSITION WITHIN THE RECORD

NOTE: AFTER KEYING THE 16 CHARACTERS ON EACH LINE, PRESS THE **REC ADV** KEY TO WRITE THEM ONTO THE DISKETTE.



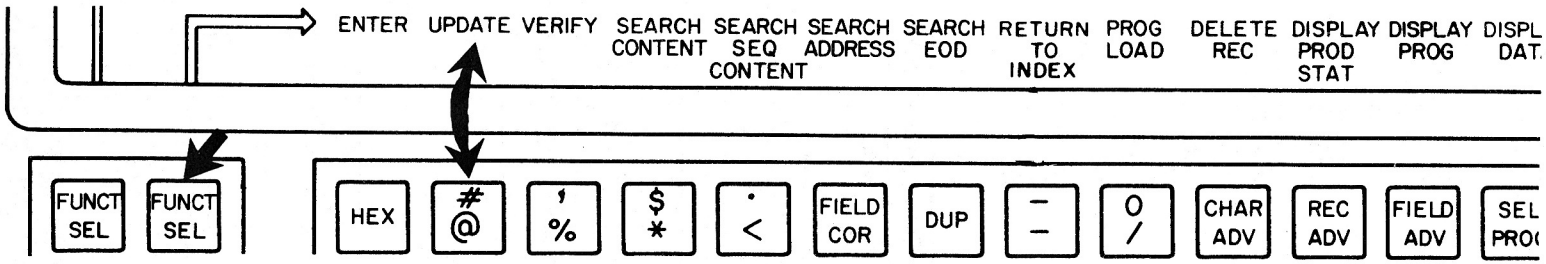
4 After you press the REC ADV key to write record 35 onto the diskette, notice that the current record address in the status line is 02010. If you had an additional record to enter it would go into that address.

5 Return the machine to Index mode.

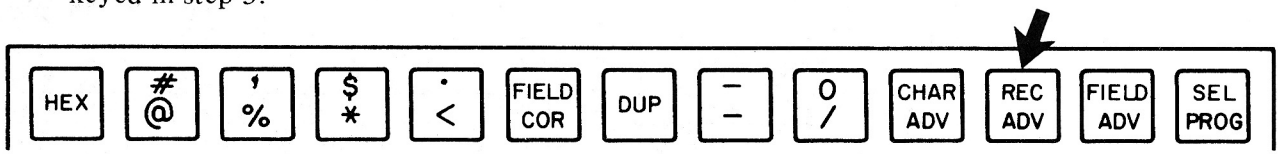


The following special procedure may be used to redisplay and check the records that you entered.

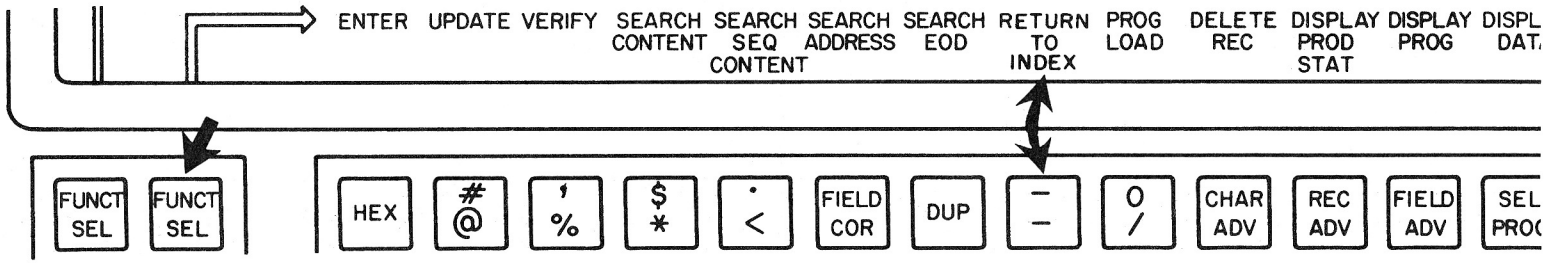
6 Press the FUNCT SEL lower and the UPDATE keys. This will redisplay the first record.



7 Next press the REC ADV key once for each of the remaining 35 records, and compare them to the characters keyed in step 3.



8 After displaying and comparing the last record, return the machine to Index mode.

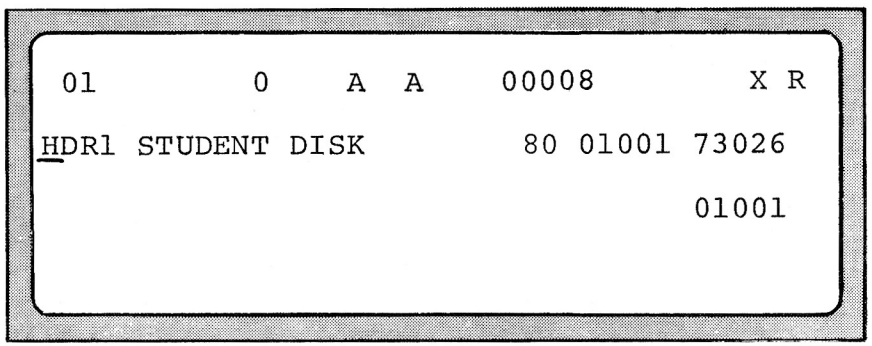


END OF THE EXERCISE

Track 00

Track 00 is different from the other 73 tracks on the diskette. Data records are never written on track 00 because it is used for identification records. Sectors 1 through 7 are used by the 3742 and cannot be used by the operator. Sectors 8 through 26 are used to identify the data records that are written elsewhere on the diskette.

When you first insert the student diskette into the machine, Sector 08 of Track 00 is displayed. The information in it is an identification record that looks similar to this.



These identification records, called Data Set Labels, will be explained in detail in a later session.

Track 00 has many uses that will be explained further in the course.

At this time you should know the following about Track 00.

- Only identification type records are written in Track 00 (Data Set Labels).
- Data records are never written in Track 00.
- Track 00 is automatically addressed when the machine is in Index mode. For that reason it is called the INDEX TRACK.
- During this course Sector 08 of Track 00 must be displayed when you select the ENTER mode.
- A special procedure is used to write the identification records in Track 00. This procedure will be explained in a later session.

Self-Evaluation Questions

1. Which mode of operation is selected as soon as a diskette is inserted into the machine?

2. What mode must the machine be in to select the ENTER mode of operation?

3. What mode must the machine be in to reload information onto the diskette?

4. How many tracks are on a diskette, and how are they numbered?

5. How many sectors are in each track?

6. Which position of a 5-digit track address is always zero?

7. What is another name for Track 00?

8. What is the name given to the identification records used in Track 00?

Answers to the Self-Evaluation Questions

1. INDEX
2. INDEX
3. ENTER
4. 74, numbered from 00 through 73
5. 26
6. The middle one
7. INDEX TRACK
8. Data Set Labels

Session 4: Flashing Display Screen Errors

Introduction

The letter-type error codes, called functional errors, occur because of an incorrect usage of keys. This session will describe how to correct the K, M, and the N type errors. In this session you will also be directed to locate the error code listing in the Operator's Guide, and to locate the procedure used to correct the K, M, and N type errors.

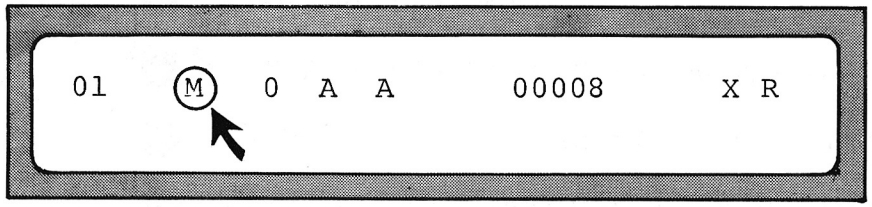
The topics presented in this session are:

1. Locating the error code in the status line.
2. The K error code.
3. The M error code.
4. The N error code.
5. Procedure to be used for errors that occur in this course.

This session requires approximately 20 minutes to complete.

Locating the Error Code in the Status Line

When the display screen starts to flash, the code identifying the error will appear in this position of the status line.



If an error should occur during any of the exercises, refer to the status line to determine the error code.

The K, M and N Errors

K Code

The K error code occurs if the A or Z keys are pressed with the machine in Numeric shift. To correct this error press RESET, then type the correct key.

M Code

The M error code occurs when an attempt is made to select the Enter mode of operation when the machine is not in Index mode. The M code is always associated with incorrect attempts to use the machine modes of operation.

In the Operator's Guide each of the causes for an M code are listed. As you progress through the course, you will learn how to recognize and correct each of them. The normal correction procedure for an M error is to press RESET, and then select the correct mode.

N Code

The N error code occurs when the keys are pressed too fast for the machine. It will also occur if multiple character keys are pressed simultaneously. The correction procedure is to press RESET, then continue with the correct characters.

Reading Assignment

In the Operator's Guide the error codes are listed alphabetically in the section titled *Error Recovery and Glossary*. Immediately following the Z error code the NUMBER type errors are listed.

Remember that every possible cause for each error is described, and at this time you do not have enough knowledge of the machine to correct them all. The important consideration is that you should be able to locate the error code lisitng for later use in the course.

Locate the *Error Recovery* section in the Operator's Guide, and **read** the descriptions for the K, M, and N codes. Return to this point in the student guide after you complete the reading.

Procedure to be Followed for Errors

During the remainder of the course if an error occurs, read the description of the error code in the Operator's Guide, correct the condition if possible, then continue.

If you are unable to correct the error condition, return the machine to Index mode and restart the exercise with step 1.

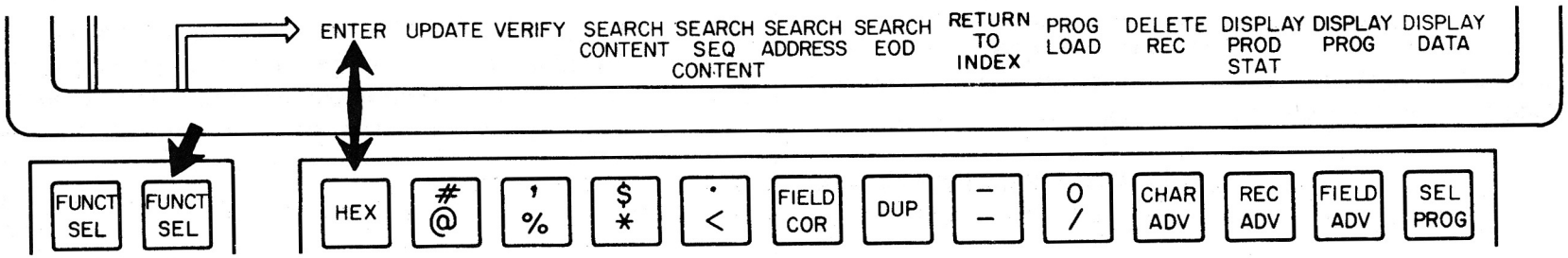
By the time you finish this course you should be able to correct most of the common errors with little or no assistance.

Machine Exercise 4-1: K, M, and N Errors

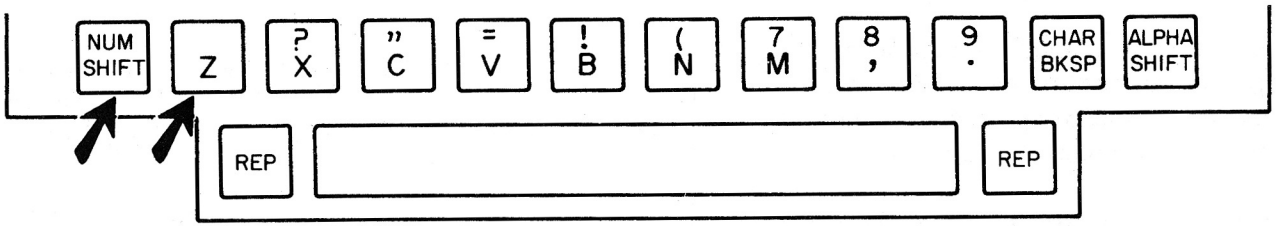
In this exercise you will force a 'K', 'M', and 'N' error and then reset each of them.

Directions

1 Select the ENTER mode of operation.



2 Hold down the NUM SHIFT key and press the 'Z' key.



3 Check the error code, ensure that it is a 'K', then reset the error.

4 Place your fingers on the ASDFG keys then press them simultaneously and rapidly to force the error.

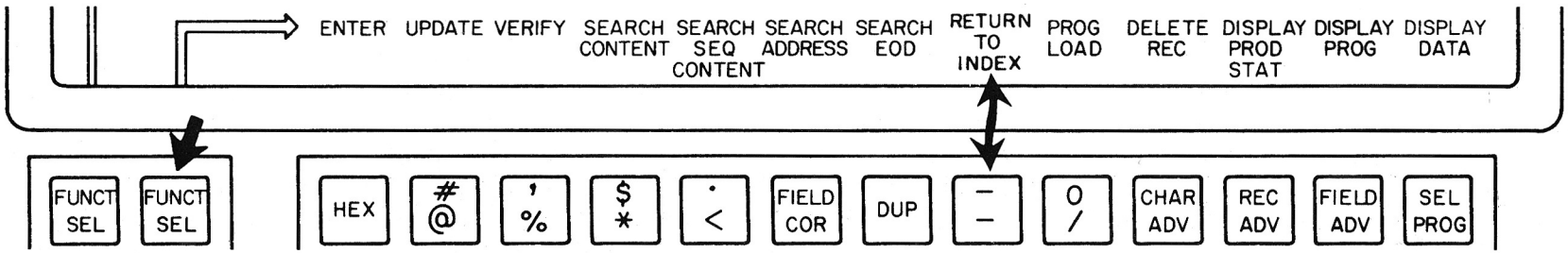
5 Check the error code, ensure that it is an 'N', then reset the error.

6 Press the FIELD CORR key.

7 Check the error code, ensure that it is an 'M', then reset the error.

The FIELD CORR key is used to select the Field Correct mode of operation. The 'M' error occurred because the Field Correct mode of operation cannot be selected while the machine is in Enter mode. Field Correct will be explained in the session that teaches the verify operation.

8 Return the machine to Index mode.



END OF THE EXERCISE

Self-Evaluation Questions

1. What key sequence will cause a 'K' error code?

2. Where is the error code located on the display screen?

3. What should you do if an error occurs that you cannot correct?

Answers to the Self-Evaluation Questions

1. The 'A' or 'Z' keys were pressed with the keyboard in numeric shift.

2. In the second field of the status line (next to the cursor position field).

3. Return the machine to Index mode, and restart with step 1 of the exercise.

Session 5: Source Documents

Introduction

Two different form types are used for the source information that is keyed into the 3742. The first type is the columnar form commonly used for statistical reports; the second type is the business form such as a shipping invoice or a department store sales slip.

Both types of source documents will be used in the course. This session will teach you how to read and interpret them.

The topics presented in this session are:

1. Columnar forms.

2. Business forms.

This session requires approximately 2 hours to complete.

General Requirements of a Source Document

Two general source document types are used for information that is keyed into the 3742. The first is the columnar type that is most frequently used with statistical data. The second type is the business form such as a shipping invoice or a department store sales slip.

The document type used for the source information in your office will depend on the job you do, but basically it will be either the columnar type or the business form type. Regardless of which type is used, it will contain the source information to be keyed into the machine, a description of the information on the form that is to be keyed, and the exact position for each character in the record.

If you are unfamiliar with the source documents used in your office, your advisor or supervisor will explain them to you after this course.

Columnar Source Documents

Columnar source documents come in two general forms as shown in Figure 5-2. They are *lined* or *unlined.* These forms are used when every record in a job will have the same type of information in each field. The lined form requires very little additional directions for its use because each line on the form is a separate record.

Lined Forms

The lined form (Figure 5-1) has numbers at the top of each column to show the position used for every character. This form makes it easier to visualize the data as it will appear on the display screen. In addition, it is easier to see where blanks are inserted. A disadvantage of this form is that the lines make it difficult to read.

EMPLOYEE TIME SHEET

LINE NUMBER	EMPLOYEE NAME										EMPLOYEE NUMBER					HOURS WORKED		DEPT.			WEEK ENDING				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	C	O	U	D	R	I	E				1	2	3	4	5	4	0	L	4	7	1	2	-	1	2
2	J	O	N	E	S						1	2	3	4	6	5	0	L	4	7	1	2	-	1	2
3	L	A	W	L	E	R					1	2	3	4	7	3	9	L	4	7	1	2	-	1	2
4	M	A	N	N	I	N	G				1	2	3	4	8	3	7	L	4	7	1	2	-	1	2
5	P	E	T	E	R	S	O	N			1	2	3	4	9	3	8	L	4	7	1	2	-	1	2
6	S	M	I	T	H						1	2	3	5	0	4	3	L	4	7	1	2	-	1	2
7	W	I	L	S	O	N					1	2	3	5	1	3	6	L	4	8	1	2	-	1	2
8	G	O	O	D							1	2	3	5	2	3	6	L	4	8	1	2	-	1	2
9	P	A	T	C	H						1	2	3	5	3	3	5	L	4	8	1	2	-	1	2
10	C	H	E	E	R						1	2	3	5	4	3	9	L	4	8	1	2	-	1	2
11	B	O	R	T	Z						1	2	3	5	5	4	0	L	4	8	1	2	-	1	2
12	B	O	L	E	B	R	U	C	H		1	2	3	5	6	4	5	L	4	8	1	2	-	1	2

Figure 5-1

Unlined Forms

The unlined form (Figure 5-2) contains the same data as the lined form, but it is easier to read. The numbers in parentheses indicate the positions to be used for each field. The only disadvantage to this type of form is that the operator must watch the cursor position field (in the status line) to ensure that each character is placed into the proper position.

Several exercises in the course will use the columnar type form.

	EMPLOYEE TIME SHEET				
LINE NUMBER	EMPLOYEE NAME (1-10)	EMPLOYEE NUMBER (11-15)	Hours (16-17)	Dept. (18-20)	WEEK ENDING (21-25)
1	COUDRIE	12345	40	L47	12-12
2	JONES	12346	50	L47	12-12
3	LAWLER	12347	39	L47	12-12
4	MANNING	12348	37	L47	12-12
5	PETERSON	12349	38	L47	12-12
6	SMITH	12350	43	L47	12-12
7	WILSON	12351	36	L48	12-12
8	GOOD	12352	36	L48	12-12
9	PATCH	12353	35	L48	12-12
10	CHEER	12354	39	L48	12-12
11	BORTZ	12355	40	L48	12-12
12	BOLEBRUCH	12356	45	L48	12-12

Figure 5-2

Additional Notes

No Spaces Between Fields

The information that is keyed into the 3742 will normally not contain spaces between each field as you would see it on a typewriter. This allows the maximum amount of data to be included in the fewest number of positions in a record.

By eliminating spaces, the computer can process more data at one time. When it prints out a report from the data it will insert the necessary blanks to make the report legible.

Heading Information

The heading information is never keyed into a record unless you are specifically directed to do so. The headings on a source document are included for convenient reference. For example, the field heading names of *employee name, employee number, hours worked,* etc. would not be keyed into the machine.

Each Line is a Record

Each line on a columnar form becomes one record on the diskette. For example, all of the information for the employee named *Coudrie* (Figure 5-2) would be the first record, then all the information for the employee named *Jones* would be the second record, and so on through all the lines on the form.

Different Types of Characters in the Same Field

A field can contain a combination of letters, numbers and symbols. An example is the "department" field of Figure 5-1 in which the first character is an L and the "Week Ending" field in which the middle character is a dash.

When you are entering data into the machine, it is very important that you key each character correctly. Because there can be different types of characters in a field, it is possible for an I or an l to be mistaken for a one, or for an alphabetical O to be mistaken for a zero or a 2 for a Z. If you are uncertain what a particular character should be, ask your supervisor or advisor for help.

Records as They Appear on the Display

Figure 5-3 shows how the first six records from the columnar source documents would appear on the display screen. Notice that the current record address (in the status line) increases by one for each record, and that the numbers in each field are adjacent to each other.

1. What are the two general types of source documents?

* * *

Columnar and business form.

2. What is an advantage of the unlined columnar form?

* * *

It is easier to read.

3. How can the operator tell when enough blanks have been inserted in a field?

* * *

By spacing over until the cursor is positioned at the start of the next field.

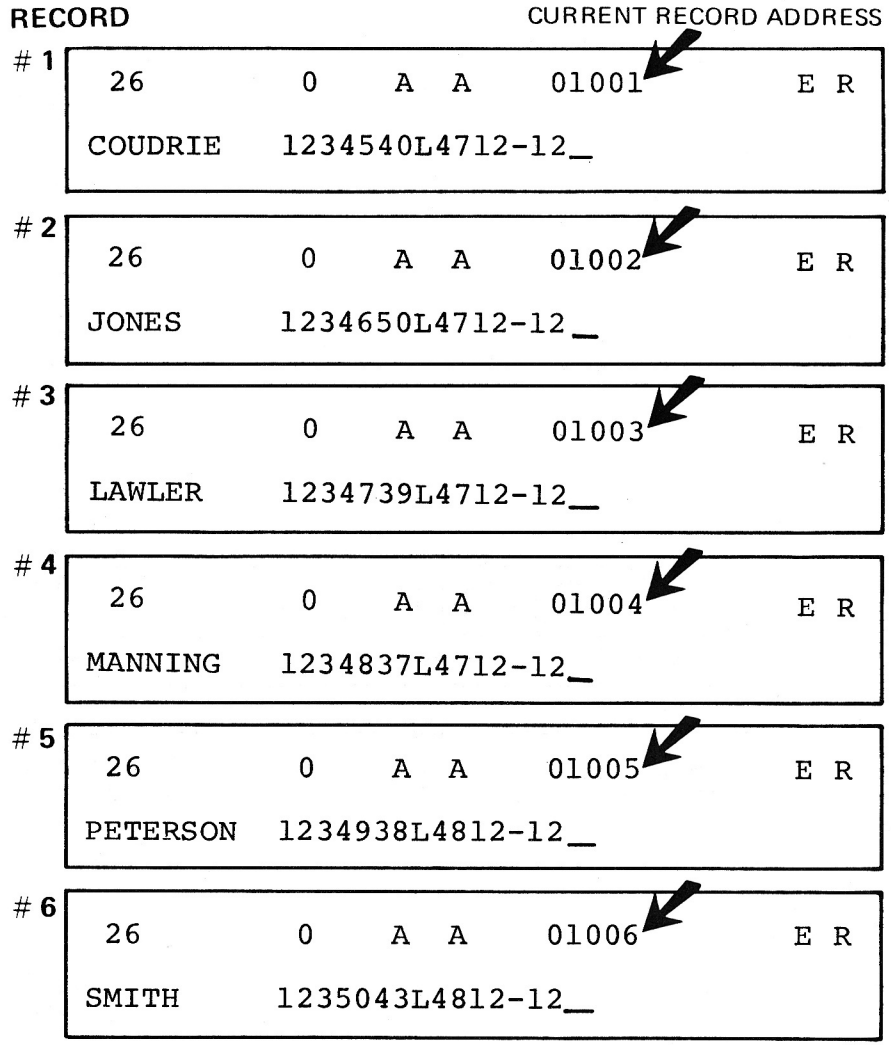


Figure 5-3

4. How many records are written for each line on the source document?

* * *

One.

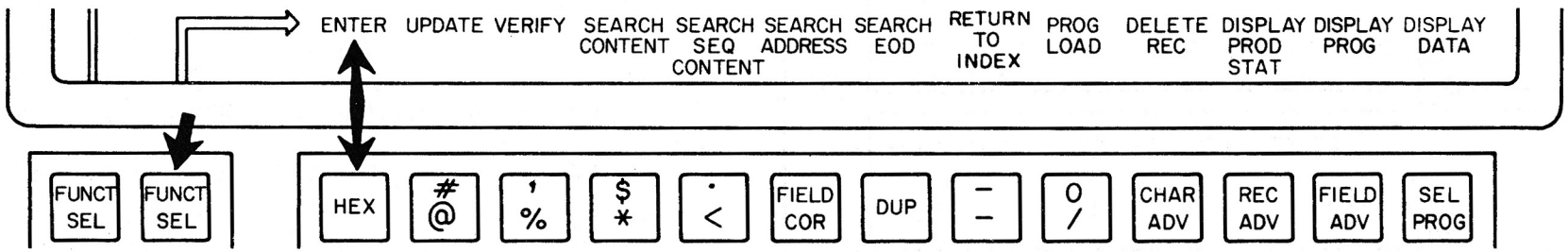
Machine Exercise 5-1: Using an Unlined Source Document

This exercise will use an unlined source document for the information to be keyed into the machine. As you key the data into the machine, ensure that each character is placed into the correct position and that blanks are inserted where appropriate. Each of the 12 data records is 25 characters long.

Figure 5-3 shows how the first six records will appear on the display. You may use the figure as reference if necessary.

Directions

1. Ready the machine with the student diskette inserted.
2. Select the ENTER mode.



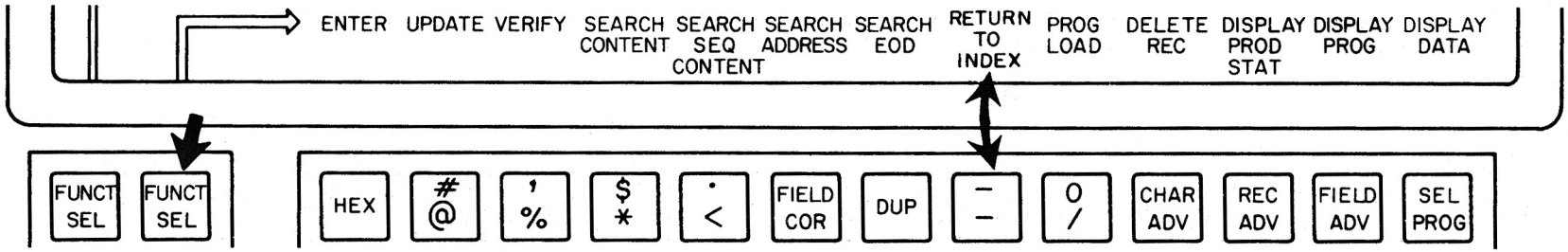
3 Key the following information into the machine.

EMPLOYEE TIME SHEET

LINE NUMBER	EMPLOYEE NAME (1-10)	EMPLOYEE NUMBER (11-15)	Hours (16-17)	Dept. (18-20)	WEEK ENDING (21-25)
1	COUDRIE	12345	40	L47	12-12
2	JONES	12346	50	L47	12-12
3	LAWLER	12347	39	L47	12-12
4	MANNING	12348	37	L47	12-12
5	PETERSON	12349	38	L47	12-12
6	SMITH	12350	43	L47	12-12
7	WILSON	12351	36	L48	12-12
8	GOOD	12352	36	L48	12-12
9	PATCH	12353	35	L48	12-12
10	CHEER	12354	39	L48	12-12
11	BORTZ	12355	40	L48	12-12
12	BOLEBRUCH	12356	45	L48	12-12

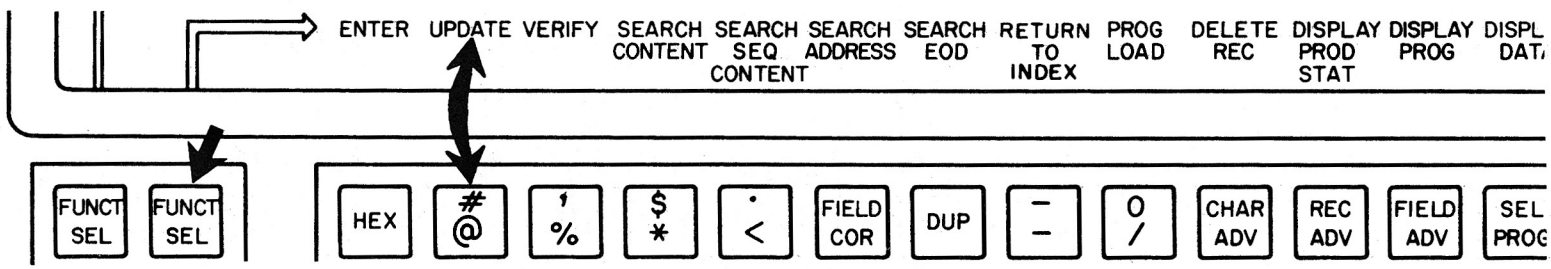
Continued on next page.

4 Return the machine to the INDEX mode.



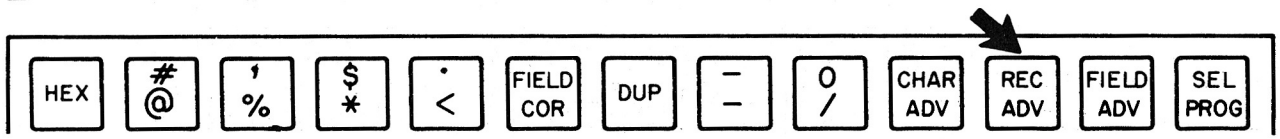
The next steps will allow you to redisplay and check the accuracy of the records entered onto the diskette.

5 Press the FUNCT SEL lower and the UPDATE keys.

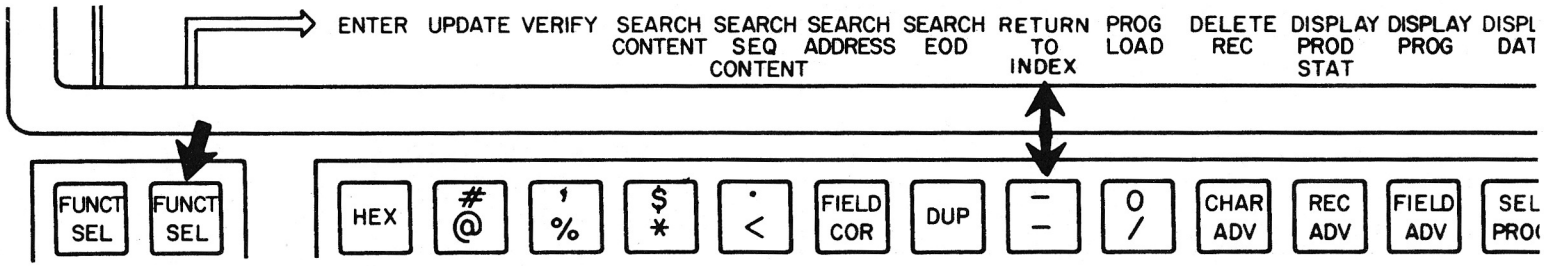


6 Compare the record on the display to the first record entered in step 3.

7 Press the REC ADV key once for each of the remaining 11 records, and compare them to the data entered in step 3.



8 After displaying and comparing the last record, return the machine to Index mode.



END OF THE EXERCISE

BREAK POINT

Business Forms

Business forms like the shipping invoice in Figure 5-4 are designed to be used by the originating department (shipping department) and by the 3742 operator as source information. The business forms used in your office are designed to meet the needs of your company.

When you are given a job that uses a business form for source data, you will be given directions about how each field from the form is to be keyed into the data record in the machine.

The Shipping Invoice (Figure 5-4) is the business form that will be used for the exercises in this course.

EL BARISA FRUIT CO.

SOLD TO
SMITH GROCERY (1-20)
353 MAIN STREET (21-35)
ANY TOWN ALA. 12345 (36-55)
} RECORD FORMAT # 1

SHIP TO
MR. J.L. JONES (1-14)
SMITH GROCERY STORE (15-34)
10 WEST STREET (35-49)
ATLANTA, GA. 30328 (50-67)
} RECORD FORMAT # 2

CUSTOMER NO. 616054 (68-73)
INVOICE NO. 11321 (74-78)
} EVERY RECORD

RECORD FORMAT # 3 →

	STOCK NUMBER (1-6)	DESCRIPTION (7-30)	QUAN. (31-32)	UNIT PRICE (33-36)		TOTAL PRICE (37-40)	
#3	612481	BANANAS CASE	2	5	00	10	00
#4	456269	ORANGES GROSS	3	9	85	29	55
RECORDS #5	307595	GRAPEFRUIT GROSS	1	14	25	14	25
#6	730747	PINEAPPLES DOZEN	1	6	35	6	35
#7	237222	DISPLAY RACKS	10		0		0

NOTE: THE SHADED AREAS ARE PREPRINTED PARTS OF THE FORM AND ARE NOT TO BE KEYED.

Figure 5-4

Placement of Characters in Each Record

So that information can be correctly processed by the computer, all of the characters on the form must be keyed into the correct positions in their respective records. Alongside each line in the "Sold To" and "Ship To" areas of the form are numbers in parentheses. These numbers indicate the positions of the record into which the information from that line is to be keyed.

For example, the first line of the "Sold To" information goes into positions 1 through 20 of the first record. The second line goes into positions 21 through 35. The third line goes into positions 36 through 55.

In the body of the form the position numbers for each field (column) are in parentheses below the field headings.

Shaded Areas Are Not Keyed

The shaded areas of the form are not keyed into the records. They are on the form for reference only.

Using Spaces (Blanks)

In the "Sold To" and the "Ship To" areas of the form spaces are to be inserted between each word for readability. When the information in a given line does not use all of the positions allotted for it, spaces are to be inserted through the last position of that field.

For example, a space is keyed between SMITH and GROCERY in the "Sold To" line. Spaces are also keyed into positions 14 through 20 of the first record because SMITH GROCERY does not use all 20 positions allotted in the field.

At the bottom of the form spaces are to be inserted in the description field for readability and to fill in the remaining unused positions of that field.

Spaces are used in the "Quan," "Unit Price" and "Total Price" fields to position the numbers at the rightmost position of the field.

For example, a space would be keyed into position 31 so that the "Quan" would be properly positioned. The "Display Racks" would not have a space because the "Quan" is 10.

Spaces are also used in positions 41 through 67 of each record keyed from the items at the bottom of the invoice.

Customer Number and Invoice Number

When three records are produced from a single form, as with the shipping invoice, common information that applies to each record is keyed into the same positions of each record so that they can be properly identified by the computer.

The common information in the shipping invoice is the Customer number and the Invoice number.

These numbers will be keyed into positions 68 through 73 and 74 through 78 of every record produced from each invoice.

NOTE that the customer number and invoice number appear in the same positions of each of the records in the preceding record illustrations.

The instructions concerning the use of shipping invoices are presented in the following sequence.

- Record types from each Invoice.
- Placement of characters in each record.
- Shaded areas of the form are not keyed.
- Using spaces in a field.
- Customer number and invoice number.

Record Types From Each Invoice

When a business form is used, all of the information from it may be keyed into one type of record, or the information could be keyed into two or more different types or formats of records. The information from the shipping invoices, used in the machine exercises will go into three different record formats.

During the following descriptions refer to Figure 5-5 to see how each record from the shipping invoice will appear on the display screen.

Record Format #1. (RECORD # 1)

All of the information from the SOLD TO area of the form will be in one record.

Record Format #2. (RECORD # 2)

All of the information in the SHIP TO area of the form will be in a second record.

Record Format #3. (RECORDS #3 through #7)

Each of the items listed in the bottom of the Invoice will be keyed into separate records. These records will be the third record format.

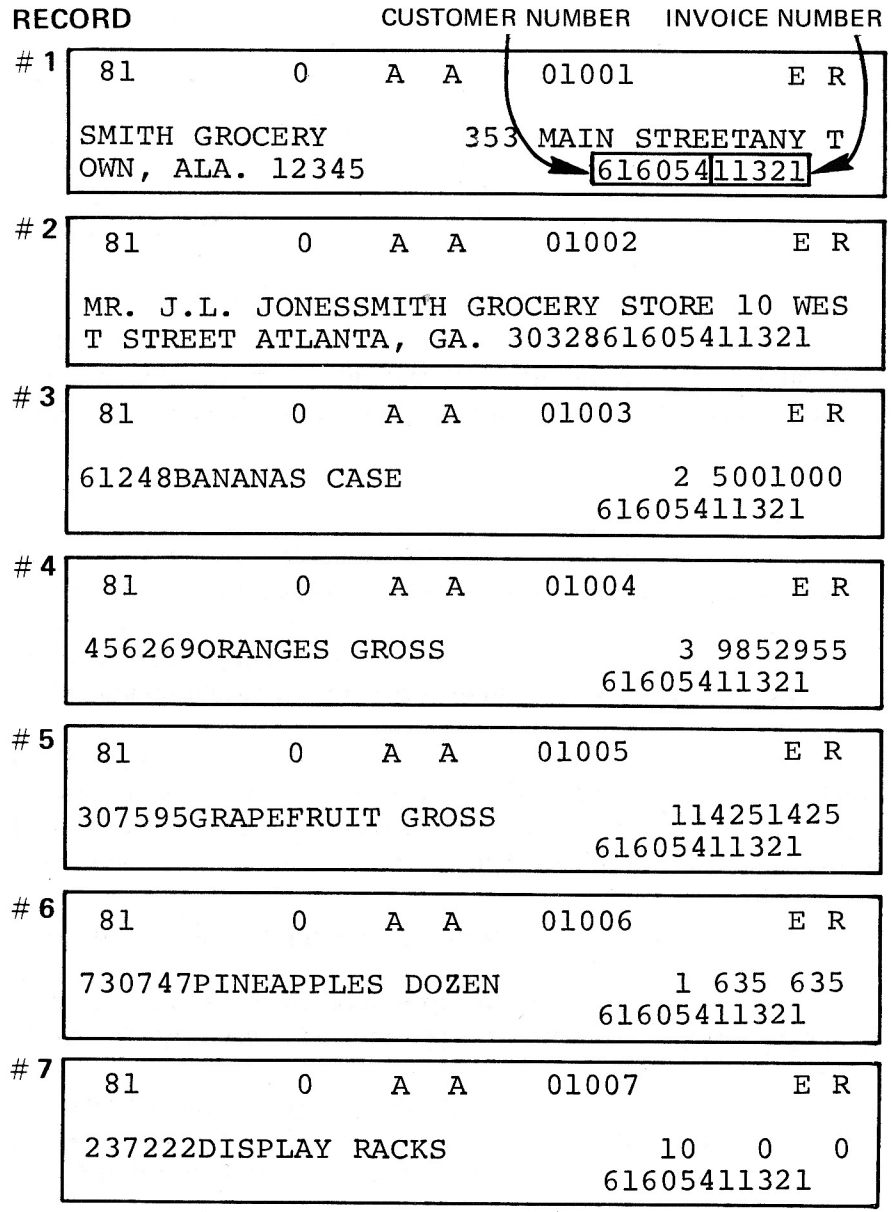


Figure 5-5

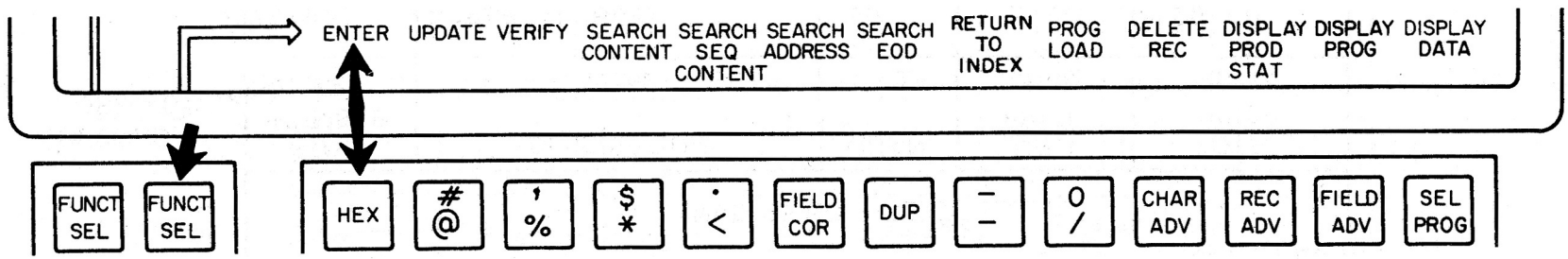
Machine Exercise 5-2: Using Shipping Invoices

In this exercise you will key the information from two shipping invoices to gain practice in using them.

You may compare the records you key against the examples in Figure 5-6 to ensure that you are entering them correctly.

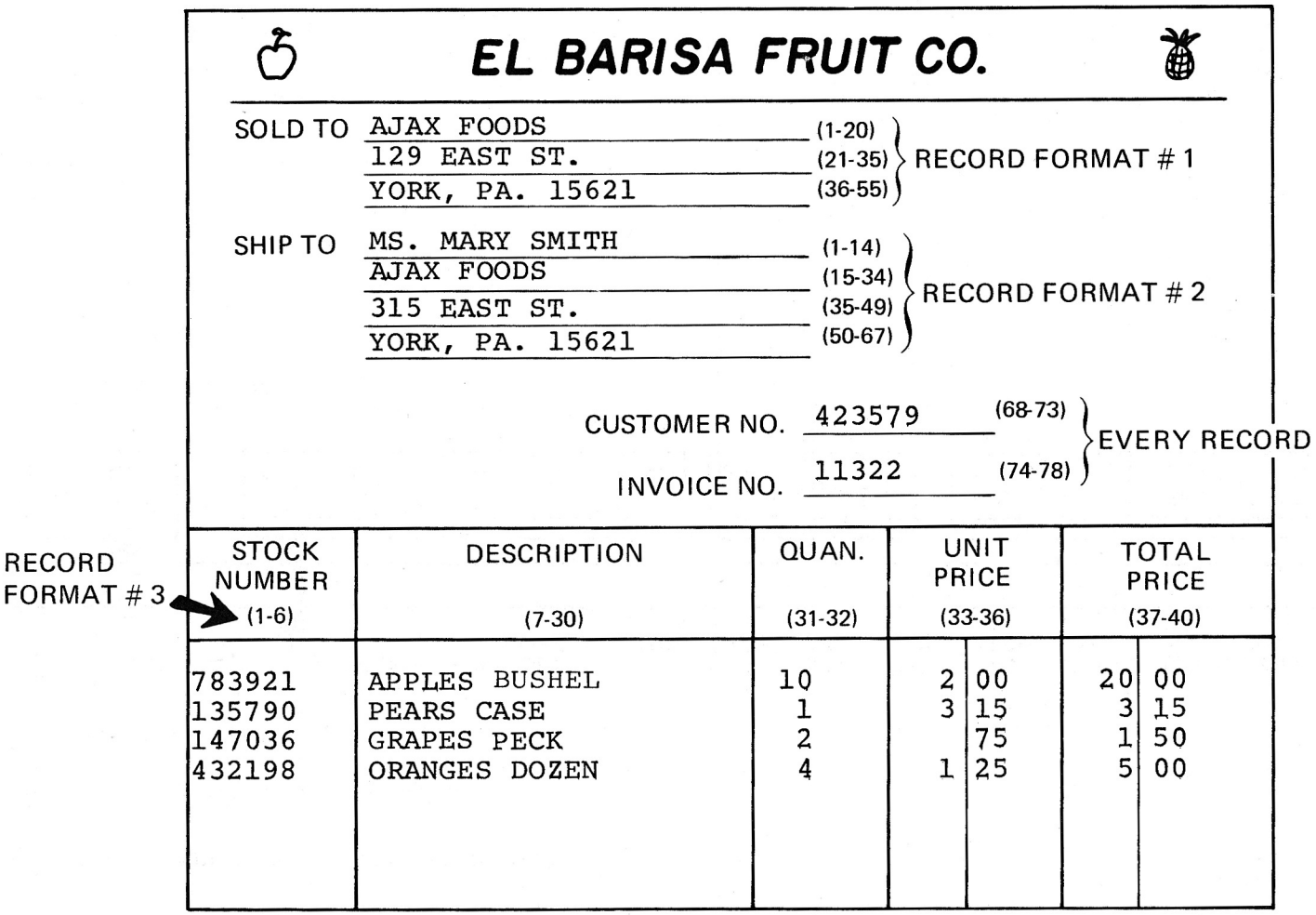
Directions

1. Ready the machine with the student diskette.
2. Turn the AUTO REC ADV switch off.
3. Select the ENTER mode.



Continued on next page.

4 Key in the information from the following two shipping invoices. (Compare your entries to the examples as required.)



EL BARISA FRUIT CO.

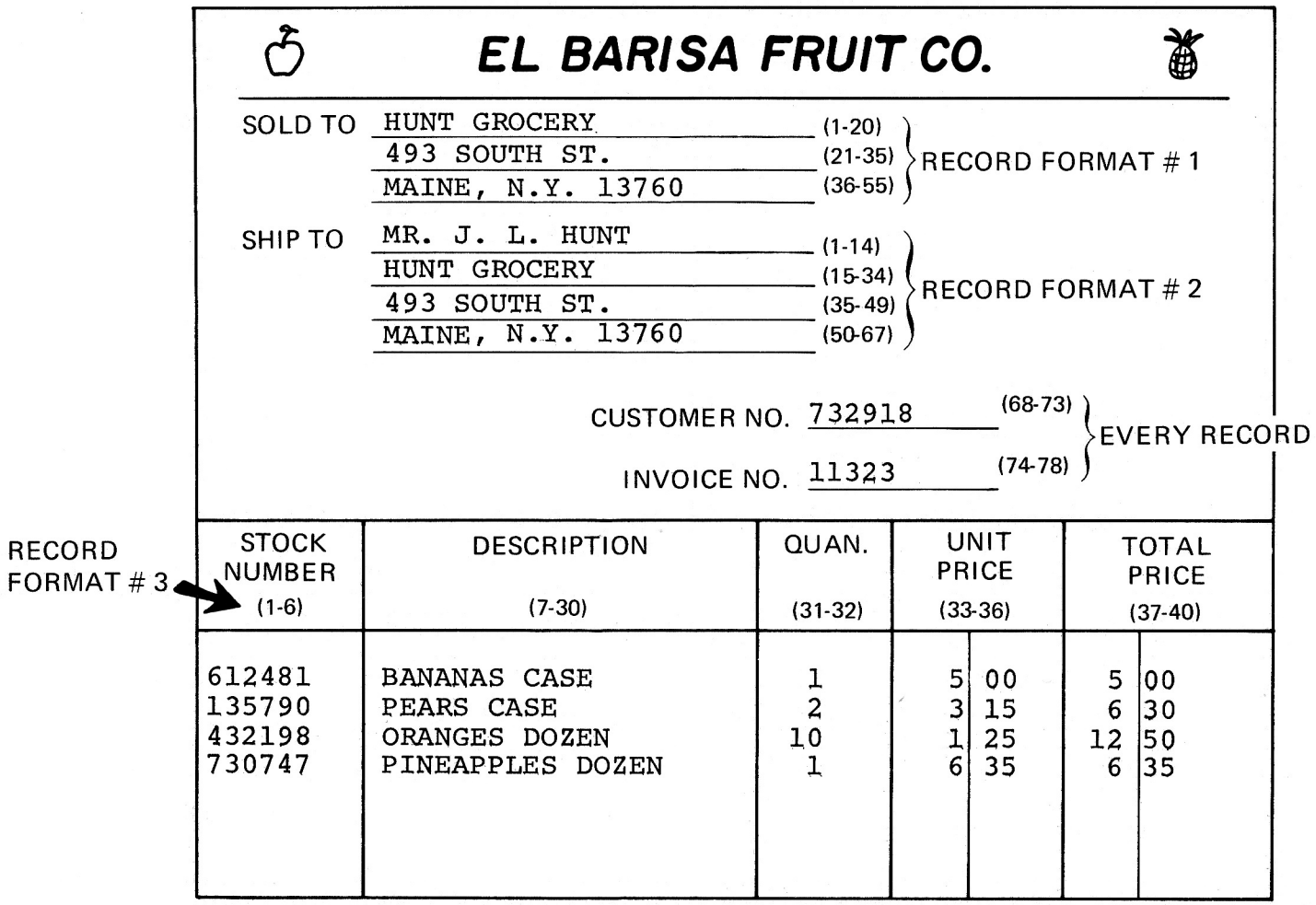
SOLD TO
AJAX FOODS (1-20)
129 EAST ST. (21-35)
YORK, PA. 15621 (36-55)
} RECORD FORMAT # 1

SHIP TO
MS. MARY SMITH (1-14)
AJAX FOODS (15-34)
315 EAST ST. (35-49)
YORK, PA. 15621 (50-67)
} RECORD FORMAT # 2

CUSTOMER NO. 423579 (68-73)
INVOICE NO. 11322 (74-78)
} EVERY RECORD

RECORD FORMAT # 3 →

STOCK NUMBER (1-6)	DESCRIPTION (7-30)	QUAN. (31-32)	UNIT PRICE (33-36)	TOTAL PRICE (37-40)
783921	APPLES BUSHEL	10	2 00	20 00
135790	PEARS CASE	1	3 15	3 15
147036	GRAPES PECK	2	75	1 50
432198	ORANGES DOZEN	4	1 25	5 00



5 Return the machine to INDEX mode (FUNCT SEL lower, and RETURN TO INDEX key).

Continued on next page.

The following steps will allow you to redisplay the records and compare them to the record examples on the next page.

6 Press FUNCT SEL lower and the UPDATE keys.

7 Compare the record on the display to record 1 from the examples on the next page.

8 Press the REC ADV key once for each of the remaining 11 records, and compare the data in them to the record examples.

9 After you display and compare the last record, return the machine to Index mode (FUNCT SEL lower, and the RETURN TO INDEX key).

END OF THE EXERCISE

Part I of Figure 5-6 shows how the six records from Invoice # 11322 will appear on the display screen.

RECORD

 # 1

```
 01          0     A  A     01001          U R

AJAX FOODS              129 EAST ST.    YORK,
 PA. 15621                      42357911322
```

2

```
 01          0     A  A     01002          U R

MS. MARY SMITHAJAX FOODS              315 EA
ST ST.    YORK, PA. 15621    42357911322
```

3

```
 01          0     A  A     01003          U R

783921APPLES BUSHEL              10 2002000
                                 42357911322
```

4

```
 01          0     A  A     01004          U R

135790PEARS CASE                  1 315 315
                                 42357911322
```

5

```
 01          0     A  A     01005          U R

147036GRAPES PECK                 2  75 150
                                 42357911322
```

6

```
 01          0     A  A     01006          U R

432198ORANGES DOZEN               4 125 500
                                 42357911322
```

Figure 5-6 Part I.

Part II of Figure 5-6 shows how the six records from Invoice # 11323 will appear on the display screen.

RECORD

 # 7

```
 01          0     A  A     01007          U R

HUNT GROCERY          493 SOUTH ST.  MAINE
, N.Y. 13760                   73291811323
```

8

```
 01          0     A  A     01008          U R

MR. J.L. HUNT HUNT GROCERY          493 SO
UTH ST.  MAINE, N.Y. 13760 73291811323
```

9

```
 01          0     A  A     01009          U R

612481BANANAS CASE                1 500 500
                                 73291811323
```

10

```
 01          0     A  A     01010          U R

135790PEARS CASE                  2 315 630
                                 73291811323
```

11

```
 01          0     A  A     01011          E R

432198ORANGES DOZEN              10 1251250
                                 73291811323
```

12

```
 01          0     A  A     01012          U R

730747PINEAPPLES DOZEN            1 635 635
                                 73291811323
```

Figure 5-6 Part II.

Self-Evaluation Questions

1. What two general types of source forms are used in this course?

2. How are the positions used for each field indicated on the unlined columnar type form?

3. How many different record formats (types) are keyed from the shipping invoices used in this course?

4. How many records are produced from the information in the bottom of the shipping invoice?

5. What information from a shipping invoice is keyed into the same positions of every record keyed?

6. What do the numbers in parentheses on the shipping invoice indicate?

7. The shaded information on the shipping invoice is not keyed into the machine. True or False?

8. How many records are keyed from each line on a columnar form?

9. In exercise 5-2 how many records were keyed from the information on invoice #11322?

10. In exercise 5-2 what was the Track and Sector address of the "Sold To" record from invoice #11323? (Refer to the examples of the display.)

11. What character is used to fill the unused positions on a field?

12. If only one number is used in a field that has two positions allotted to it where should the number go?

    a. In the leftmost position (left justified).
    b. In the rightmost position (right justified).

BREAK POINT

Answers to Self-Evaluation Questions

1. Column, and shipping invoice (business form).

2. By numbers in parentheses in each field.

3. Three. One format for the "Sold To" information
   One format for the "Ship To" information
   One format for each of the items in the bottom of the invoice.

4. One for each item listed.

5. Customer number and invoice number.

6. The positions used in the record for the indicated information.

7. True. It is included for reference only.

8. One record is keyed for each line on a columnar form.

9. Six. One for the "Sold To", one for the "Ship To", and one for each of the four items in the bottom of the form.

10. Track 01, Sector 07 (01007)

11. Spaces (blanks).

12. b. Numbers are always aligned to the right side of the field.

UNIT ONE SUMMARY

This completes Unit One, *Machine Familiarization.* The following items were presented in this unit.

Keyboard

The keys are arranged the same as on a typewriter except for the numbers, which are grouped on the right side of the keyboard.

Display Unit

The top line of the display is called the status line and is used to determine the current record address in addition to machine status information. A special mark on the display, called a *cursor,* is used to identify the position into which the next character will go.

Each data line on the display can contain 40 characters, and the entire display can contain up to 80 characters. 80 characters is the maximum that can be contained in a Sector on a diskette.

Machine Malfunctions

A buzzing sound indicates a disk unit problem and a flashing display screen indicates a functional error. Functional errors are identified by a letter code in the status line.

Source Documents

There are a number of types of source documents. The columnar and the business form (shipping invoice) types are used in this course.

Unit Two

Unit Two, *Machine Utilization,* will build upon the concepts presented in Unit One to show how the machine is used for production work. As you proceed through Unit Two you should refer to the Operator's Guide and Unit One of this study guide for directions relating to any key, function, or operation that you cannot recall.

Operator's Guide

The Operator's Guide and this study guide are basic references for your use in operating the machine. You should also refer to the specific job instructions used in your office.

BREAK POINT

You may take a break at this point, then resume the course with Session 6.

UNIT TWO
MACHINE UTILIZATION

Session 6: Using Enter Mode for Production Work

Session 7: Additional Programming Controls

Session 8: Adding, Deleting, Changing Records on the Diskette

Session 9: Verifying Data on the Diskette

Session 10: Identification of Data on the Diskette

Session 6: Using Enter Mode for Production Work

Introduction

The basic function of the 3742 is the entering of data onto diskette for processing by a computer. A machine control feature called *programming* is used to make the machine operate more efficiently while you are entering data.

This session will present how to set up for and enter data onto a diskette under control of a program.

The topics presented in this session are:

1. Checklist for production jobs and exercises.
2. What is a program and how is it used.
3. Keys used in loading and activating a program.
4. Skipping entire fields.
5. Duplicating data from one record to the next.
6. Using Auto duplication and Auto skipping.

This session requires approximately 2 hours to complete.

Enter Mode for Production Work

When using the 3742 for production work a standard feature called a PROGRAM is used to control certain machine functions and to improve machine speed and efficiency.

What is a Program and How is it Used

Functions Controlled by Programs

The machine functions controlled by a program are:

- Keyboard shift
- Duplication of common data from record to record
- Automatic skipping over blank positions
- Right alignment of characters within fields.

Program Code Characters

A program is a sequence of characters that are loaded into an electronic storage area of the machine to control its operation. Every program contains a letter, period or dash for each character position in a record. These letters, periods and dashes are called *program code characters.*

You will be given the program code characters to be used for each exercise.

What Does a Program Look Like

The letters, periods, and dashes in the following figure are the program code characters that would be used when entering data into the machine from the employee time sheet.

EMPLOYEE TIME SHEET

EMPLOYEE NAME										EMPLOYEE NUMBER					HOURS WORKED		DEPT.			WEEK ENDING				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
C	O	U	D	R	I	E				1	2	3	4	5	4	0	L	4	7	1	2	-	1	2
J	O	N	E	S						1	2	3	4	6	5	0	L	4	7	1	2	-	1	2
L	A	W	L	E	R					1	2	3	4	7	3	9	L	4	7	1	2	-	1	2
A	·	·	·	·	·	·	·	·	·	N	-	-	-	-	N	-	A	-	-	N	-	-	-	E

← FIELD NAME

← POSITIONS IN RECORD

← PROGRAM CODE CHARACTERS

How to Interpret the Code Characters

Keyboard Shift and Field Definition

Before looking at the specific code characters, it is first necessary to define two basic functions that a program will perform.

1. Automatic keyboard shift for each position of a record.

2. Define the start and the length of each field in a record.

   Keyboard shift simply means that the machine will automatically put the keyboard in the correct shift for each character position. This means that the operator does not need to hold down the NUM SHIFT or ALPHA SHIFT keys.

   Defining the start and length of a field give the 3742 a capability similar to tabbing on a typewriter. By pressing the correct key the cursor will move immediately to the beginning of the next field. In effect the program code characters function like tab stops on a typewriter.

Defining the Use of Each Character

The A and N characters identify the start of each field. The periods and dashes define each position of a field.

Each position that contains an A or a period will cause the machine to be in ALPHA (alphabetic) SHIFT. Each position that has a N or a dash will cause the keyboard to be in NUM SHIFT (numeric).

The E in position 26 identifies the end of the program.

Notice the following about the program used for the preceding Employee Time Sheet:

- A letter is used to indicate the start of each field.
  - An A indicates Alpha shift for that position of the record.
  - An N indicates Numeric shift for that position of the record.
- A period or dash is used to indicate the number of characters in each field.
  - A period indicates Alpha shift for that position of the record.
  - A dash indicates Numeric shift for that position of the record.
- The E identifies the End of the program and the end of the record.

Names of the Letters, Periods, and Dashes

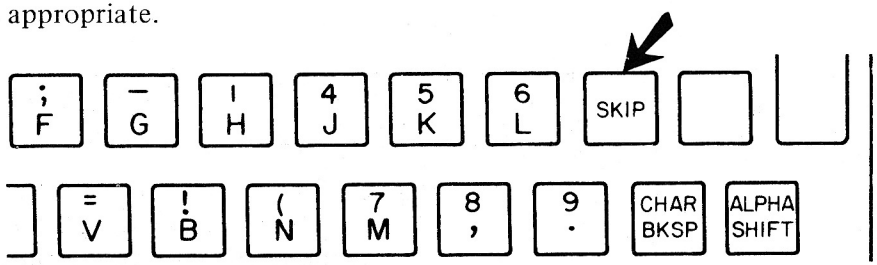
The letters used in a program are called *begin field codes.* The periods and dashes used in a program are called *continue field codes.*

Using the Skip Key

When you are not using a program you must insert spaces into the remaining unused positions of a field by using the space bar.

When using a program you may press the SKIP key to cause the machine to automatically put spaces in the unused positions of a field and skip to the first position of the next field. (This is similar to tabbing on a typewriter.)

In all exercises using programs, you should use the SKIP key when appropriate.



Using the AUTO REC ADV Switch

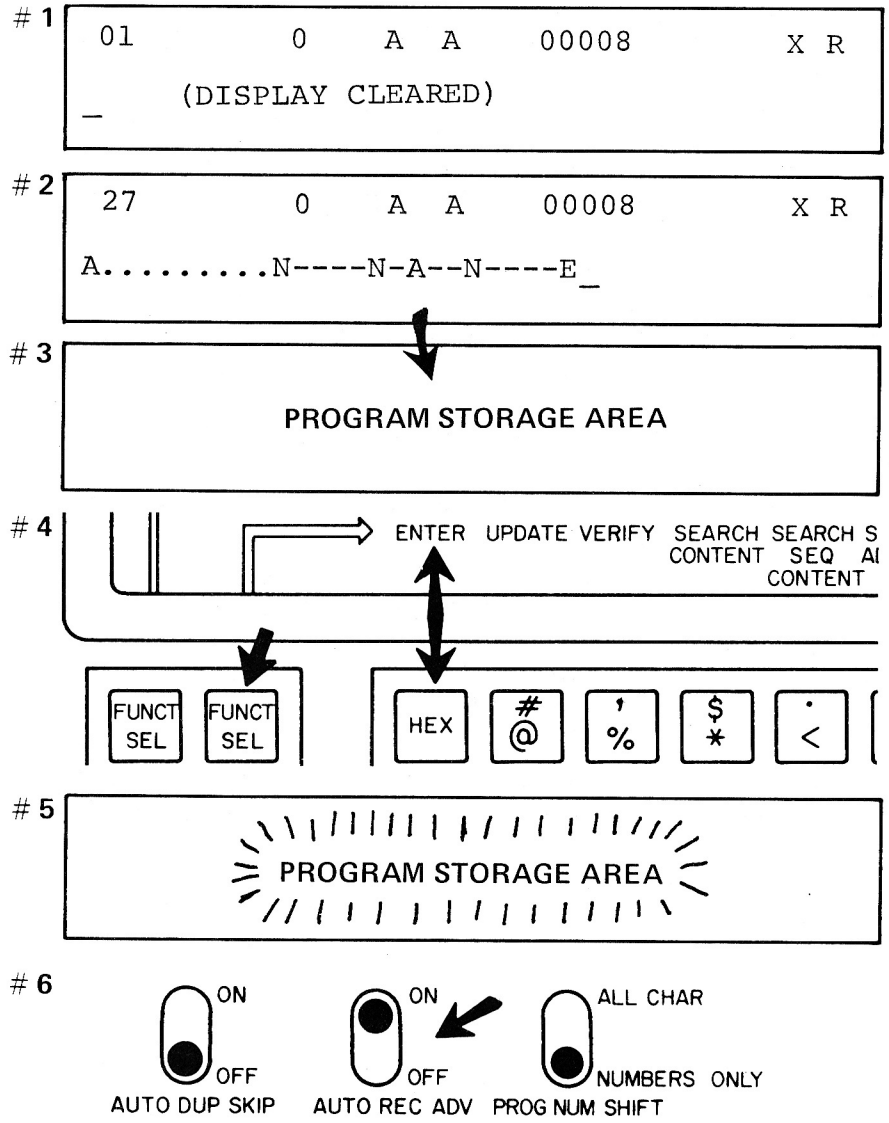
When you are not using a program you must press the REC ADV key to write a record on diskette. When you are using a program turn on the AUTO REC ADV switch. Then when you key the last character of a record the machine will automatically record advance.

To Load and Use a Program

The following description and figures show the six major steps in loading and using a program. Read through these steps now, then refer to them later during the exercise.

1. Clear the display screen (with the diskette inserted).
2. Key the program into the display screen.
3. Load the program from the display screen into the machine.
4. Select the Enter mode.
5. Activate the program.
6. Turn on the AUTO REC ADV switch.

Enter the data as usual with the keyboard shift and record advance under control of the program.



Program Storage Areas

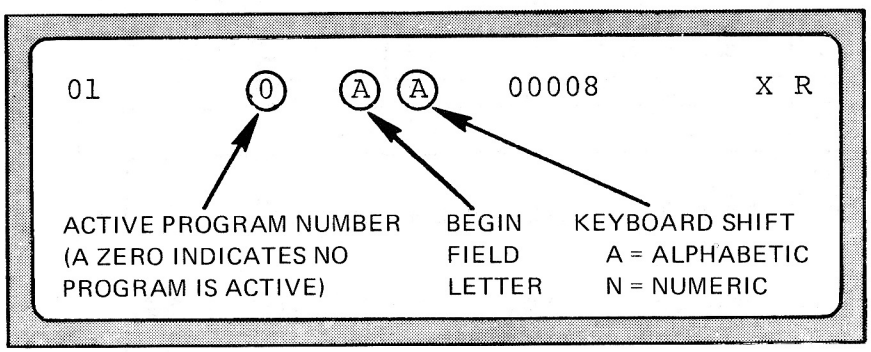
The 3742 has six program storage areas. This allows the operator to have up to six programs in the machine that can be activated when needed.

If your machine has the 128 character feature installed, your machine will have ten program storage areas numbered from 1 to 9. The tenth storage area is numbered A.

Program Information in the Status Line

Three positions in the status line are used for the following:

- Active program number.
- Letter used for the beginning of the current field.
- Keyboard shift.



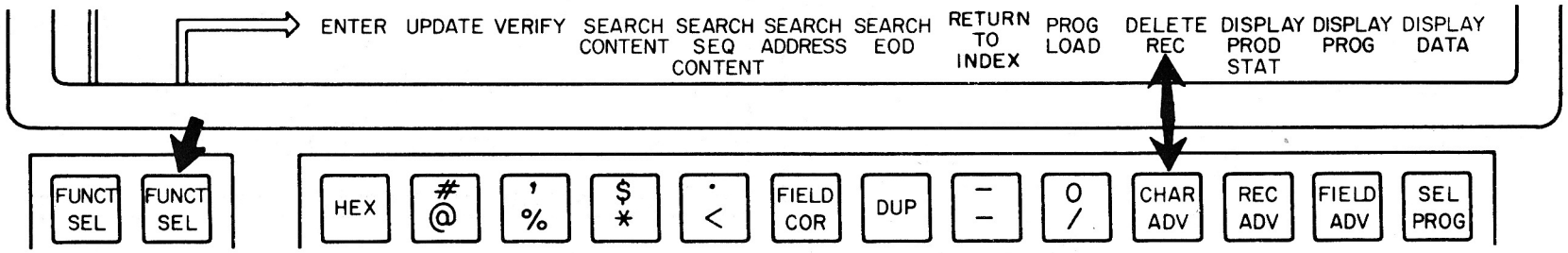
Machine Exercise 6-1: Using a Program

In this exercise you will load a program into the machine and use it to control the machine while entering data from the Employees Time Attendance sheet.

Directions

1. Insert the student diskette and ready the machine. (Turn the AUTO REC ADV switch off.)

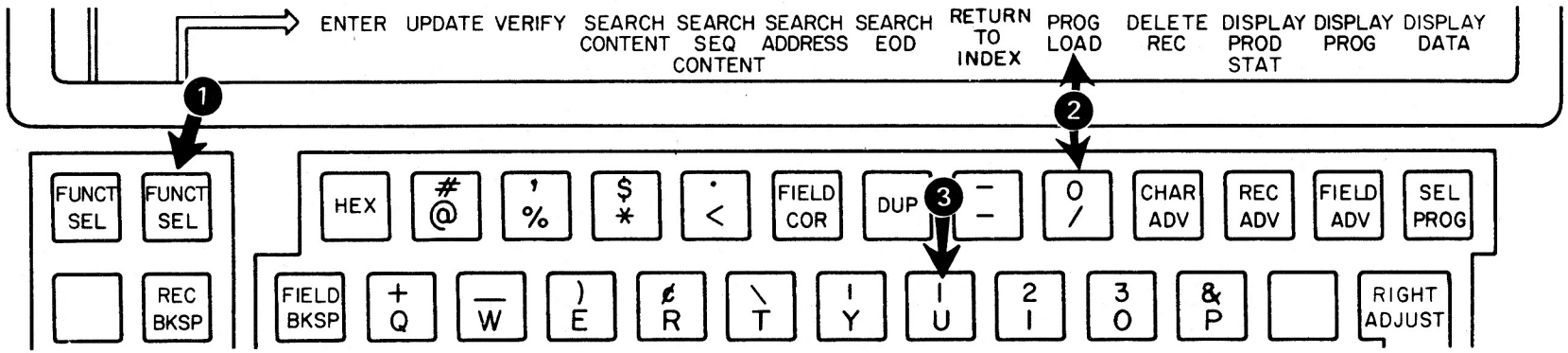
2. Clear the display screen by pressing the FUNCT SEL lower, and DELETE REC keys.



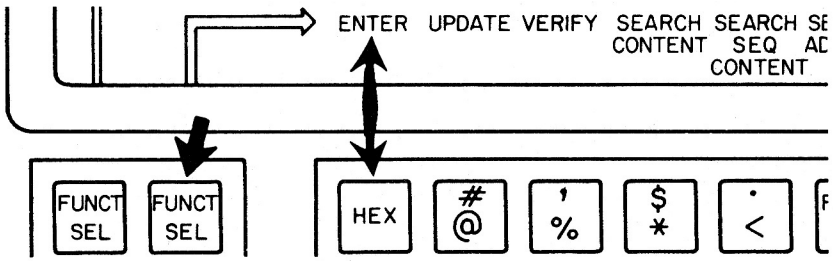
3. Key the following program into the display screen. Be certain to enter each program code character into the correct position.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
A	·	·	·	·	·	·	·	·	·	N	-	-	-	-	N	-	A	-	-	N	-	-	-	-	E	

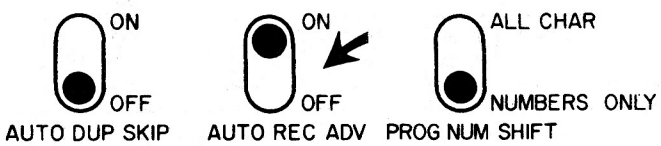
4 Load the program from the display screen into program storage area 1 by pressing these keys in the indicated sequence.



5 Select ENTER mode.

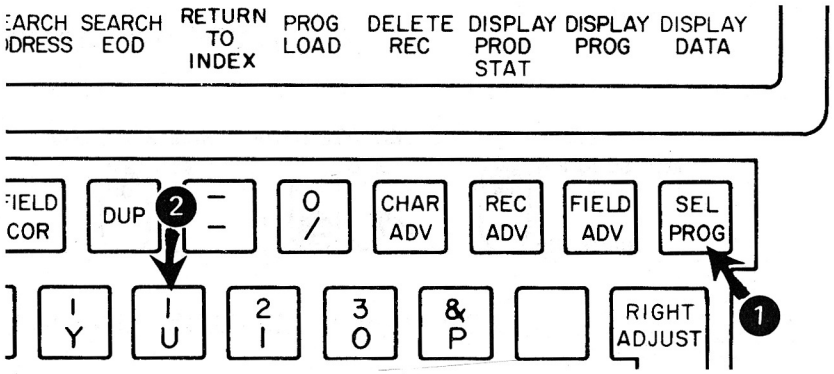


6 Turn on the AUTO REC ADV switch.



Continued on next page.

7 Activate the program by pressing the keys in the indicated sequence.



8 Key the following source information into the machine.

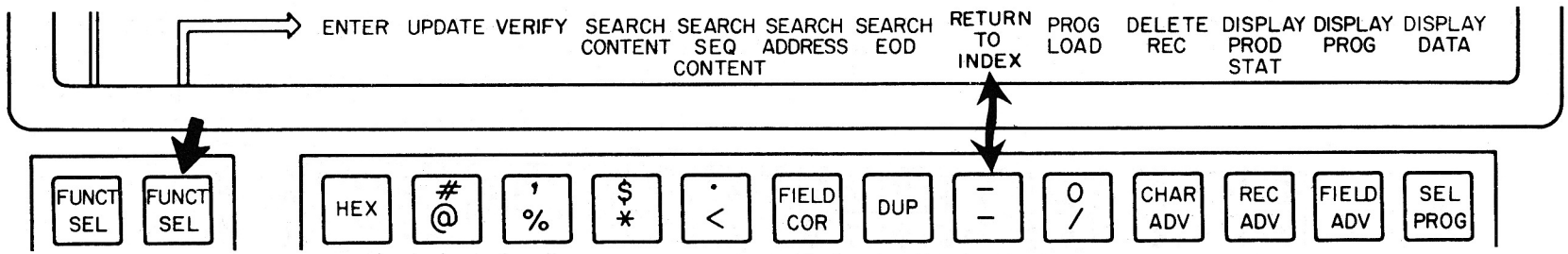
- Use the SKIP key as appropriate.
- Notice how quickly the automatic record advance occurs.
- Refer to the status line to determine keyboard shift, if necessary.

EMPLOYEE TIME SHEET

LINE NUMBER	EMPLOYEE NAME										EMPLOYEE NUMBER					HOURS WORKED		DEPT			WEEK ENDING				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	C	O	U	D	R	I	E				1	2	3	4	5	4	0	L	4	7	1	2	-	1	2
2	J	O	N	E	S						1	2	3	4	6	5	0	L	4	7	1	2	-	1	2
3	L	A	W	L	E	R					1	2	3	4	7	3	9	L	4	7	1	2	-	1	2
4	M	A	N	N	I	N	G				1	2	3	4	8	3	7	L	4	7	1	2	-	1	2
5	P	E	T	E	R	S	O	N			1	2	3	4	9	3	8	L	4	7	1	2	-	1	2
6	S	M	I	T	H						1	2	3	5	0	4	3	L	4	7	1	2	-	1	2
7	W	I	L	S	O	N					1	2	3	5	1	3	6	L	4	8	1	2	-	1	2
8	G	O	O	D							1	2	3	5	2	3	6	L	4	8	1	2	-	1	2
9	P	A	T	C	H						1	2	3	5	3	3	5	L	4	8	1	2	-	1	2
10	C	H	E	E	R						1	2	3	5	4	3	9	L	4	8	1	2	-	1	2
11	B	O	R	T	Z						1	2	3	5	5	4	0	L	4	8	1	2	-	1	2
12	B	O	L	E	B	R	U	C	H		1	2	3	5	6	4	5	L	4	8	1	2	-	1	2

Continued on next page.

9 Return the machine to Index mode.



10 Open the cover on the disk unit.

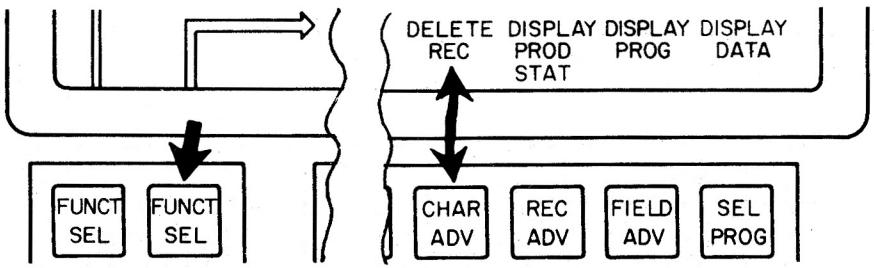
END OF THE EXERCISE

BREAK POINT

Keys Used in Loading and Activating Programs

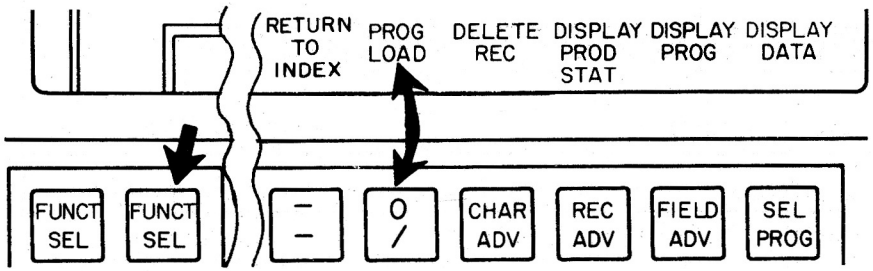
Clearing the Display Screen

The FUNCT SEL lower and the DELETE REC function keys are used in Index mode to clear the display screen.



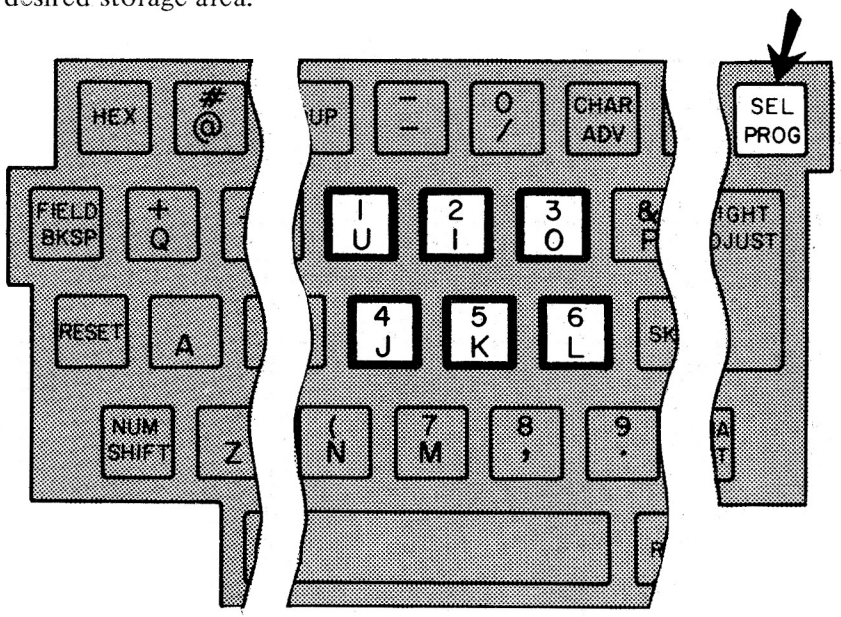
Loading Programs into Storage

To load the program into the machine, key the program code characters into the display screen. Then press the FUNCT SEL lower key, the PROG LOAD function key, and the number of the storage area.



Activating a Program

After you have selected the machine mode, you activate the desired program by pressing the SEL PROG key then the number of the desired storage area.



Skipping Entire Fields

Occasionally there are fields that contain data for only a few records out of an entire job. Without programming you would have to repetitively press the space bar to put blanks into each position of the field.

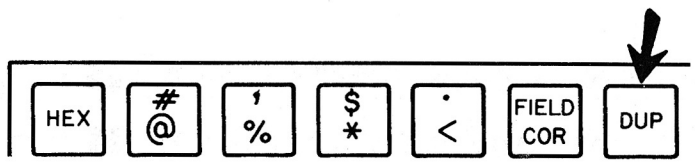
With programming, you can use the SKIP key to insert spaces (blanks) into every position of a field. For example, in the following PROJECT REPORT there is no PROJECT NAME for the third employee (Lawler). When keying this record into the machine, you must place spaces in positions 11 through 24. If this occurred many times during a report, repetitive depressions of the space bar *could be* eliminated by pressing the SKIP key. The SKIP key should be used at any appropriate time in the exercises.

PROJECT REPORT

EMPLOYEE NAME										PROJECT NAME														DEPARTMENT										EMPLOYEE NUMBER					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
C	O	U	D	R	I	E				N	E	W		P	R	O	D	U	C	T				P	R	O	C	E	S	S	I	N	G	1	2	3	4	5	
J	O	N	E	S						O	L	D		P	R	O	D	U	C	T				P	R	O	C	E	S	S	I	N	G	1	2	3	4	6	
L	A	W	L	E	R																			P	R	O	C	E	S	S	I	N	G	1	2	3	4	7	
M	A	N	N	I	N	G				R	E	D	E	S	I	G	N		B	O	L	T	S	P	R	O	C	E	S	S	I	N	G	1	2	3	4	8	

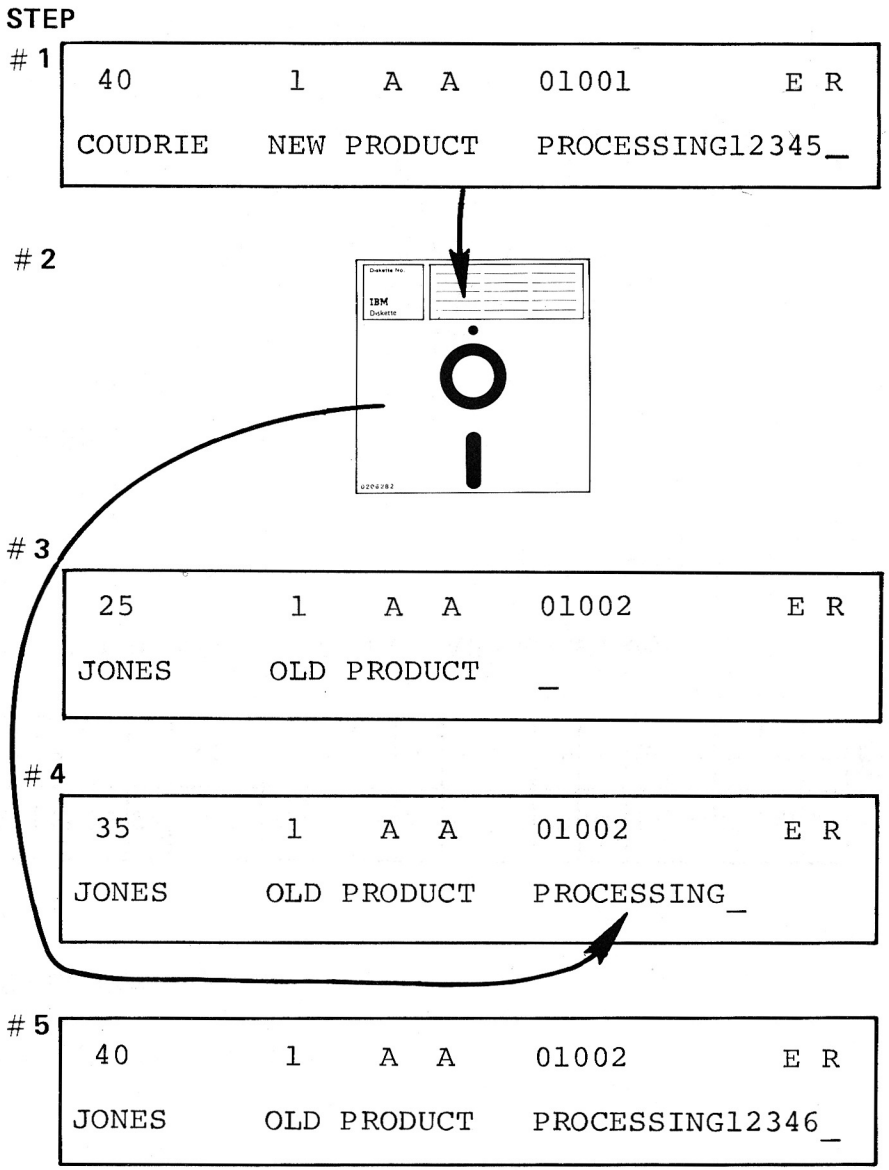
Duplicating Data from One Record to the Next

An operating efficiency of the 3742 is the ability to duplicate information from one record to the next. For example, in the preceding project report, the name of the DEPARTMENT is the same for all employees. Normally you must key each of these individually. By using the DUP key and a program you need only key the department name into the first record then press the DUP key to duplicate the entire field into each record. The DUP key must be pressed once for each field/record to be duplicated.



Read through the following description and figures that illustrate how duplication is used, then refer to them during the exercise.

1. Key entire first record.
2. Press REC ADV to write Record #1 onto diskette.
3. Key in the second Employee Name and Project Name.
4. Press DUP key and the machine automatically duplicates the data from the previous record positions 25 through 34 into positions 25 through 34 of the display unit.
5. Key in the Employee Number to complete the record.
6. Press REC ADV to write the second record onto the diskette.
7. Repeat steps 3, 4, 5, and 6 for each subsequent record.



Machine Exercise 6-2: Using the SKIP and DUP Keys

In this exercise you will use the SKIP key, the DUP key and a program to enter the data from the Employee Project Report.

Directions

1. Ready the machine with the student diskette. (Turn the AUTO REC ADV switch off.)
2. Clear the screen using the FUNCT SEL lower, and DELETE REC keys.
3. Key the following program code characters into the display screen.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A	•	•	•	•	•	•	•	•	•	A	•	•	•	•	•	•	•	•	•	•	•	•	•	A	•	•	•	•	•	•	•	•	•	N	–	–	–	–	E

4. Load the program into program storage area 1 by using the FUNCT SEL lower, the PROG LOAD and the 1 keys.
5. Place the machine in Enter mode.
6. Turn on the AUTO REC ADV switch.
7. Activate the program by pressing the SEL PROG key then the 1 key.

8 Key the following information into the machine using the SKIP and DUP keys as appropriate.

PROJECT REPORT

EMPLOYEE NAME	PROJECT NAME	DEPARTMENT	EMPLOYEE NUMBER
COUDRIE	NEW PRODUCT	PROCESSING	12345
JONES	OLD PRODUCT		12346
LAWLER			12347
MANNING	REDESIGN BOLTS		12348
THORSON			12349
BOLEBRUCH			12350
SCHWARTZ	REDESIGN BOLTS	PROCESSING	12351

9 Return the machine to Index mode. (FUNCT SEL lower, and return to INDEX keys.)

END OF THE EXERCISE

Using Auto Duplication and Skipping

The duplication and skipping functions in the previous exercise can be made to occur automatically by placing the proper code characters in the program.

Duplication

The program code characters D and U are used for duplication. The D places the machine in numeric shift and the U places the machine in alphabetic shift.

Skipping

The program code characters S and K are used for skipping. The S places the machine in numeric shift and the K places the machine in alphabetic shift. Normally the shift used for a skipped field is not important. However there are occasions when an exception occurs and some data must be keyed into a normally skipped field. For those exceptions the appropriate code is used to put the machine in the correct shift.

Using the AUTO DUP/SKIP Switch

The AUTO DUP/SKIP switch controls automatic duplication and skipping. The switch is normally turned on for every record but the first. It is off for the first record to allow entering the duplicated data in the first record.

The switch is also turned off when it is necessary to change any field that is duplicated. For example, in the employee time sheet the department number is duplicated in all records, but it changes for employees Wilson through Bolebruch. After the record advance for employee SMITH, turn off the switch so you can type the new department number for Wilson. Then turn it on again.

The switch is also turned off to allow entering data into a field that is normally skipped. For example, the Overtime Hours field will be skipped in every record but the one for the employee named Bortz. That employee has overtime so the switch would be turned off before keying position 17 to allow keying of the overtime. After keying it, turn the switch on again.

EMPLOYEE TIME SHEET

EMPLOYEE NAME (1-10)	EMPLOYEE NUMBER (11-15)	Reg. Hours (16-17)	Over-Time Hours (18-19)	Dept. (20-22)	WEEK ENDING (23-27)
COUDRIE	12345	40		L47	12-12
JONES	12346	40		L47	12-12
LAWLER	12347	39		L47	12-12
MANNING	12348	37		L47	12-12
PETERSON	12349	38		L47	12-12
SMITH	12350	40		L47	12-12
WILSON	12351	36		L48	12-12
GOOD	12352	36		L48	12-12
PATCH	12353	35		L48	12-12
CHEER	12354	39		L48	12-12
BORTZ	12355	40	10	L48	12-12
BOLEBRUCH	12356	40		L48	12-12

Auto DUP/SKIP Switch Summary

The switch must be OFF while keying the first record in a job. Then turn the switch ON for each subsequent record.

When the data changes in a field that is auto duplicated, the switch is turned OFF BEFORE you reach that field, and turned ON again after changing the data.

Machine Exercise 6-3: Using Automatic Skip and Duplication

The source information for this exercise is the employee time sheet from the previous example. The program will automatically skip the Overtime Hours field and automatically duplicate the Department field and the Week Ending field.

You are to make the decisions about when to turn the AUTO REC ADV and AUTO DUP/SKIP switches on and off.

Directions

1. Ready the machine with the student diskette inserted. (Turn the AUTO REC ADV switch off.)
2. Clear the display screen (FUNCT SEL and DELETE REC keys).
3. Key the following program code characters into the display screen.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	•	•	•	•	•	•	•	•	•	N	-	-	-	-	N	-	S	-	U	-	-	D	-	-	-	-	E		

4. Load the program into storage area 1 (FUNCT SEL, PROG LOAD, and 1 keys).
5. Select Enter mode.
6. Activate the program in storage area 1 (SEL PROG key, and 1 key).
7. Turn the AUTO REC ADV switch on.

Continued on next page.

8 Key the information from the following employee time sheet. After keying the first record, turn the AUTO DUP/SKIP switch on. Turn the AUTO DUP/SKIP switch off for record 7 then back on again for record 8.

EMPLOYEE TIME SHEET

LINE NUMBER	EMPLOYEE NAME (1-10)	EMPLOYEE NUMBER (11-15)	Reg. Hours (16-17)	Over-Time Hours (18-19)	Dept. (20-22)	WEEK ENDING (23-27)
1	COUDRIE	12345	40		L47	12-12
2	JONES	12346	40		L47	12-12
3	LAWLER	12347	39		L47	12-12
4	MANNING	12348	37		L47	12-12
5	PETERSON	12349	38		L47	12-12
6	SMITH	12350	40		L47	12-12
7	WILSON	12351	36		L48	12-12
8	GOOD	12352	36		L48	12-12
9	PATCH	12353	35		L48	12-12
10	CHEER	12354	39		L48	12-12
11	BORTZ	12355	40	10	L48	12-12
12	BOLEBRUCH	12356	40		L48	12-12

9 Return the machine to Index mode (FUNCT SEL lower, and return to INDEX keys).

END OF THE EXERCISE

Programming Considerations

There may be occasions when you will wish to select the program codes for a specific application. To prepare you for these occasions, this topic will give you reading assignments and a practice exercise relating to the selection of program codes.

Characteristics of a Field

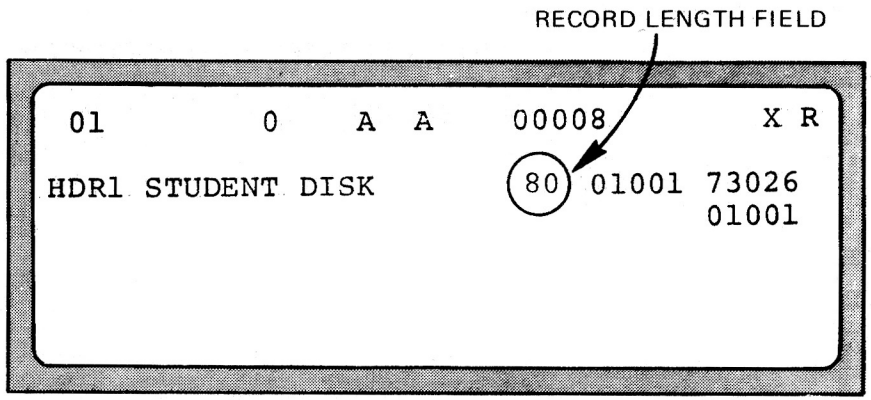
When preparing a program, you should know the following about each field:

- Starting position.
- Ending position.
- Keyboard shift for each position.
- Is the field to be Autoduplicated.
- Is the field to be Autoskipped.

Manual Fields and Record Length Field

In the Operator's Guide the term *Manual Field* is used to describe those fields that are manually keyed.

An E is used to identify the end of a program except when the program is the same length as the record length in the identifier record. The following figure shows where to locate the record length field.



Identifier records are called *data set labels.*

Reading Assignment

In the section of the Operator's Guide entitled *Programs,* read the subsections entitled *How to Make a Program* and *Types of Fields Used in Programs.* In the *Types of Fields* subsection read only the descriptions concerning manual fields, duplicate fields and skip fields. Then return to this point in the student guide.

Exercise 6-4: Selecting Program Code Characters

This exercise does not use a machine.

Select the correct codes for the following fields in a record, and write them down on a separate sheet of paper. Refer to the previous exercise examples or to the Operator's Guide if you desire.

You may compare your selections to the suggested solution on the bottom of this page.

FIELD NAME	STARTING POSITION	ENDING POSITION	KEYBOARD SHIFT	DUPLICATE YES/NO	SKIP YES/NO
EMPLOYEE NAME	1	8	ALPHA	NO	NO
DEPT	9	12	NUMERIC	YES	NO
HOURS	13	15	NUMERIC	NO	NO
EMPLOYEE NUMBER	16	20	NUMERIC	NO	NO
(UNUSED)	21	24	NUMERIC	NO	YES
OVERTIME CODE	25	28	ALPHA	NO	NO

THIS ILLUSTRATION IS A DESCRIPTION OF THE FIELDS USED ON THE SOURCE DOCUMENT.

SOURCE DOCUMENT

EMPLOYEE NAME								DEPT.				HOURS			EMPLOYEE NUMBER					NOT USED				OVERTIME CODE			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

Suggested Solution

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	•	•	•	•	•	•	•	D	-	-	-	N	-	-	N	-	-	-	-	S	-	-	-	A	•	•	•	E	

Checklist for Production Jobs and Exercises

The following chart and descriptions provide a handy check list that you may use when setting up for production jobs and exercises.

1. Obtain instructions and source data.
2. Turn power on and insert Diskette.
3. Check Identification record on Display screen.
4. Load a program into the machine.
5. Place machine in Enter mode.
6. Activate the program.
7. Turn on the designated switches.
8. Key source information into the machine.
9. End the job.
10. Remove Diskette from the machine.

STEP 1. Obtain job instructions and source data.

For every job or exercise you will need:

- Source data to be keyed into the machine.
- Instructions detailing which data from the forms is to go into each record, along with the data position within the record.
- Any exceptional instructions applicable to the job.

The source forms will be included with each exercise in this course. They will be either the column or shipping invoice type described earlier.

The positions of the data within each record will be indicated by parentheses.

STEP 2. Turn power on and insert the diskette.

Follow the normal procedure for turning on power and inserting the diskette.

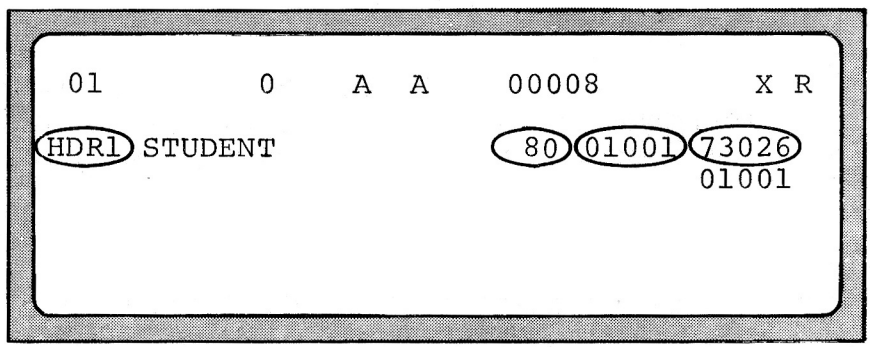
CAUTION: Always check the external label on the diskette jacket to ensure that the correct diskette is being used.

For this course always use the student diskette provided by your advisor.

STEP 3. Check identification record on the display.

With the diskette inserted, the machine displays the identification record from Track 00 Sector 08. This record is displayed so that you may check to ensure that the correct diskette is inserted.

The identification record on the student diskette will have the information shown below in it. Before starting any exercise ensure that the circled items in the figure are identical to the display. If they are not, do not continue the exercise until you are certain that the correct disk is being used.



For production jobs, your supervisor or advisor will be able to tell you what the identification record should contain.

STEP 4. Load a program into the machine.

The procedure used to load the programs is described in the section of the Operator's Guide entitled *Programming* in the subsection called *How to Load A Program from the Keyboard.*

Programs must be loaded into the machine before selecting the Enter mode.

STEP 5. Place machine in Enter mode.

After loading the program use the normal function select keys to place the machine in Enter mode.

STEP 6. Activate the program.

After you select the mode, the program must be *activated* so that it can control the machine. This procedure is described in the section of the Operator's Guide entitled *Programming,* in the subsection *How to Activate a Program in Storage.*

STEP 7. Turn on the designated switches.

The three switches at the top of the keyboard are used when entering data. Turn them on or off as required.

STEP 8. Key source information into machine.

The preceding steps will properly set up the machine. Your job now is to key the data into the machine according to the job instructions.

STEP 9. End the job.

After the last of the source data has been keyed into the machine, return the machine to Index mode by using the normal FUNCT SEL lower and RETURN TO INDEX keys.

STEP 10. Remove the diskette from the machine.

After returning to Index mode remove the diskette from the machine to guard against accidental erasure or changes. Next refer to your job instructions to determine what should be done with the diskette.

For the exercises in this course it is not necessary to remove the diskette from the machine. Just open the cover on the disk unit to guard against accidental errors.

128 Character Feature

If your 3742 has the 128 character feature installed (SCRL keys), it also has ten program storage areas. They are numbered from 1 through 9 and the tenth one is numbered A .

Summary

The information presented in Session 6 included a description of a program and how it is used to control the keyboard shift, skipping, and duplicating functions of the machine.

The primary function of a program is to make the machine more efficient by reducing the number of keystrokes for each record. The information presented in session six showed how a program can control the basic program controls of the machine.

Also included in this session was the use of the Auto REC ADV switch, and the Auto DUP/SKIP switch.

The AUTO REC ADV switch should be turned on before you key the first record in a job.

The AUTO DUP/SKIP switch should be OFF while keying the first record in a job then turned ON before starting the second record.

The AUTO DUP/SKIP switch should also be turned OFF before keying data into an auto duplicated field where the data is to be changed.

Session 7 will present the use of additional controls that are available with the 3742.

BREAK POINT

Session 7: Additional Programming Controls

Introduction

Session 6 showed how to use a program to control certain basic machine functions. This session will present how to use many of the additional programming controls available with the 3742.

The exercises 7-4 and 7-5, (multiple programs), may be more efficiently done if two diskettes are used. If possible, obtain an extra one from your supervisor or advisor for temporary use.

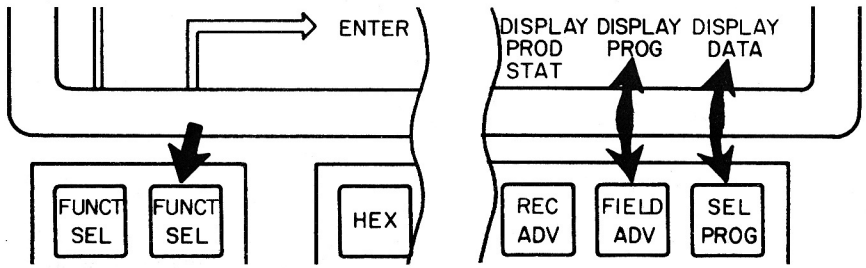
The topics presented in this session are:

1. Displaying/changing a program.
2. Field advance and backspace.
3. Using Right Adjust.
4. Minus numbers in a Right Adjust field.
5. PROG NUM SHIFT switch.
6. Multiple programs.
7. Loading programs from diskette.
8. Programming considerations.

This session requires approximately 2 hours to complete.

Displaying/Changing a Program

Anytime after selecting Enter mode and activating a program you may display the program to insure that it is correct, or to determine its contents. If it is incorrect you may change it by using the following procedures.



Displaying an Active Program

To display the active program, use the FUNCT SEL lower key and the DISPLAY PROG key. After you have looked at the program press the FUNCT SEL lower key and the DISPLAY DATA key to redisplay the current record. If you wish to change the program you must redisplay it and use the following procedure.

Changing a Program

To change an active program it must be displayed by using the NUM SHIFT key, then it must be rekeyed and reloaded into the storage area.

The steps to follow are:

1. Press FUNCT SEL lower.
2. Hold down the NUM SHIFT key and press the DISPLAY PROG key.
3. Rekey the program as desired.

To load the changed program back into storage do the following:

4. Press FUNCT SEL lower and PROG LOAD.
5. Press the desired storage area number.

The changed program is now in storage. It can be activated for use by pressing the SEL PROG key and then the appropriate storage area number key.

Reading Assignment

In the section of the IBM Operator's Guide entitled *Programs* are descriptions of the following items. Locate and read those descriptions then return to this point in the study guide.

Note: Restrict your reading to the items listed.

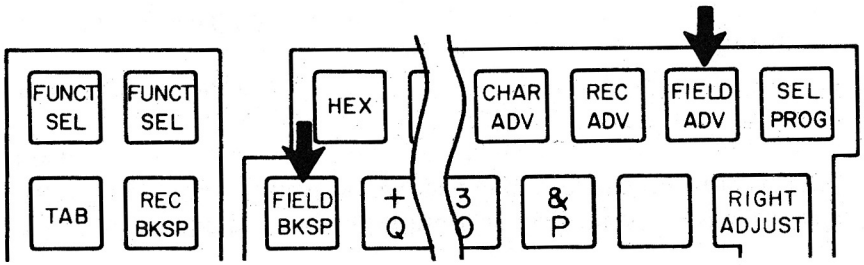
- How to load a program (from the keyboard).
- How to activate a program in storage.
- To display a program.
- To change a program that is in a storage area.

In the section entitled *Switches and Keys* locate and read the descriptions of these switches and keys. They are listed in alphabetical order in the Operator's Guide.

- AUTO REC ADV
- AUTO DUP/SKIP
- Display Data
- Display Program

Field Advance and Backspace

When using programming two keys are provided to position the cursor at the beginning of a field. These are the FIELD ADV and the FIELD BKSP.



The field advance key functions very similar to the skip key in Enter mode. You will have more use for this key in later sessions.

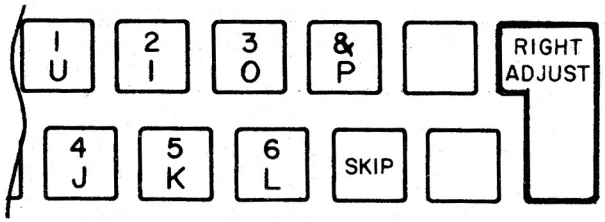
The field backspace key is simply a fast way to backspace rapidly. Each time it is pressed the cursor goes back to the first position of the current field.

Additional information about these two keys is in the *Switches and Keys* section of the Operator's Guide. You do not need to read the descriptions at this time.

Using Right Adjust

When an application requires that the numbers or letters in a field be aligned to the rightmost positions of a field, the machine can be programmed for use of the RIGHT ADJ key.

Use right adjust by keying each letter or number as you read it. After the last character has been keyed for the field, press the RIGHT ADJ key and the machine will automatically shift the characters to the rightmost position of the field.



When using right adjust the leftmost positions of the field will be filled with blanks or with zeros depending on the program codes used.

SOURCE INFORMATION			
DESCRIPTION (1-15)	QUANTITY (16-20)	PRICE (21-30)	CODE (31)
APPLES	15	150	X
PEACHES	39	235	X
(RIGHT ADJUSTED WITH BLANK FILL)	(RIGHT ADJUSTED WITH BLANK FILL)	(RIGHT ADJUSTED WITH ZERO FILL)	

Read through the following description and figures that illustrate how the right adjust fields appear on the display, then refer to them during the exercise.

STEP 1. The first field, APPLES, is keyed into the display screen.

STEP 2. The RIGHT ADJ key is pressed and the information automatically moves to the rightmost positions of the field.

STEP 3. The second field, 15, is keyed into the display screen.

STEP 4. The RIGHT ADJ key is pressed, and the information automatically moves to the right.

STEP 5. The third field, 150, is keyed into the display screen.

STEP 6. The RIGHT ADJ key is pressed. The information automatically moves to the rightmost positions and zeros are inserted (filled) into the unused positions.

STEP 7. The code field is keyed into the display screen. Right adjust is not used.

In this example all three types of right adjust are used. In most applications only one of them would normally be used depending on the needs of the job.

STEP

#1
```
16          1    Z  A    01001          E R
APPLES           _
```

#2
```
16          1    Z  N    01001          E R
            APPLES_
```

#3
```
18          1    Y  N    01001          E R
            APPLES15_
```

#4
```
21          1    Y  N    01001          E R
            APPLES   15_
```

#5
```
24          1    X  N    01001          E R
            APPLES   15150_
```

#6
```
31          1    A  A    01001          E R
            APPLES   150000000150_
```

#7
```
32          1    A  A    01001          E R
            APPLES   150000000150X_
```

Machine Exercise 7-1: Using the Right Adjust Key

This exercise will use the right adjust key.

Directions

1. Ready the machine with the student diskette inserted. (Turn the AUTO REC ADV switch off.)

2. Key the following program code characters into the display screen then load it into storage area 1 (FUNCT SEL, PROG LOAD, 1).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Z	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Y	-	-	-	-	X	-	-	-	-	-	-	-	-	-	A	E	

3. Select ENTER mode (FUNCT SEL lower, then ENTER).

4. Activate the program in storage area 1 (SEL PROG, then a 1).

5. Key the following information into the machine using the RIGHT ADJ key for all but the CODE field.

SOURCE INFORMATION			
DESCRIPTION (1-15)	QUANTITY (16-20)	PRICE (21-30)	CODE (31)
APPLES	15	1 50	X
PEACHES	39	2 35	X
PEARS	125	9 89	X
ORANGES	10	4 20	X
GRAPEFRUIT	1289	3 91	X
PINEAPPLES	23	6 15	X
(BLANK FILL)	(BLANK FILL)	(ZERO FILL)	

6. Return to Index mode. Open disk unit cover.

7. To check the accuracy of your entries, select update mode (FUNCT SEL lower, and UPDATE), then use the REC ADV key to compare each record to those keyed in step 5.

END OF EXERCISE

Minus Numbers in a Right Adjust Field

In some jobs there are occasions when a minus or negative number is used in a right adjusted field. For these fields the minus (DASH) key is used instead of the RIGHT ADJ key. When the dash key is used the number in the units position of the field becomes a letter or a special symbol.

The following figures and description illustrate this.

SOURCE INFORMATION			
DESCRIPTION (1-15)	QUANTITY (16-20)	PRICE (21-30)	CODE (31)
APPLES	15-	1 50	X
PEACHES	39-	2 35	X
PEARS	125-	9 89	X

For this example the minus sign in the QUANTITY field will represent items that were returned. When they are keyed into the display the DASH key will be used instead of the RIGHT ADJ key.

MINUS NUMBERS

```
 32          1     A  A     01001          E R
APPLES             1N            150X_

 32          1     A  A     01002          E R
PEACHES            3R            235X_

 32          1     A  A     01003          E R
PEARS              12N           989X_
```

Note that the units position of the quantity field is always a letter when the DASH key was used instead of the RIGHT ADJ key.

The following chart shows the letters displayed for the indicated numbers.

1 = J
2 = K
3 = L
4 = M
5 = N
6 = O
7 = P
8 = Q
9 = R

The only number not mentioned is zero. When a zero is in the units position of a minus field the symbol displayed will look like this:

Machine Exercise 7-2: Minus Numbers in a Right Adjust Field

In this exercise you will use the RIGHT ADJ key for the Description and Price fields and the DASH key for the Quantity field.

Each possible number is used in the units position of the quantity field to show how they appear on the display screen.

Directions

1. Ready the machine with the student diskette inserted. (Turn the AUTO REC ADV switch off.)

2. Key the following program code characters into the display screen then load them into storage area 1 (FUNCT SEL, PROG LOAD, 1).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Z	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Y	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	A	E	

3. Select ENTER mode. Turn on the AUTO REC ADV switch.

4. Activate program storage area 1 (SEL PROG, 1).

5 Key the following information into the machine. Use the RIGHT ADJ key for the DESCRIPTION and PRICE fields and use the DASH key for the QUANTITY field.

SOURCE INFORMATION			
DESCRIPTION (1-15)	QUANTITY (16-20)	PRICE (21-30)	CODE (31)
APPLES	11	1 50	X
PEACHES	12	2 50	X
PEARS	13	1 55	X
ORANGES	14	2 73	X
GRAPEFRUIT	15	4 21	X
PINEAPPLES	16	6 39	X
TOMATOES	17	8 72	X
LETTUCE	18	4 95	X
POTATOES	19	7 32	X
CORN	20	4 18	X

Note. The numbers in the Quantity field will appear as follows:

1J
1K
1L
1M
1N
1O
1P
1Q
1R
1~~H~~

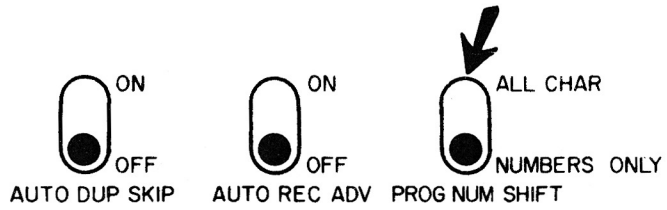
6 Return the machine to the Index mode. Open the cover on the disk unit.

END OF THE EXERCISE

BREAK POINT

PROG NUM SHIFT Switch

The Programmed Numeric Shift switch is used when keying fields programmed for numeric shift.



When the machine is programmed for numeric shift the switch controls which keys will be active. In the ALL CHAR position the top character on every key is active. In the NUMBERS ONLY position only the number 0 through 9, the minus (DASH) key, and the plus (Q) keys are active.

If a non-numeric key is pressed in a numeric field with the switch set to numbers only, a K error will occur to warn the operator that the wrong type key was pressed.

Additional information about the switch is in the *Switches and Keys* section of the Operator's Guide. You do not need to read it now.

For many jobs this switch will be in the NUMBERS ONLY position.

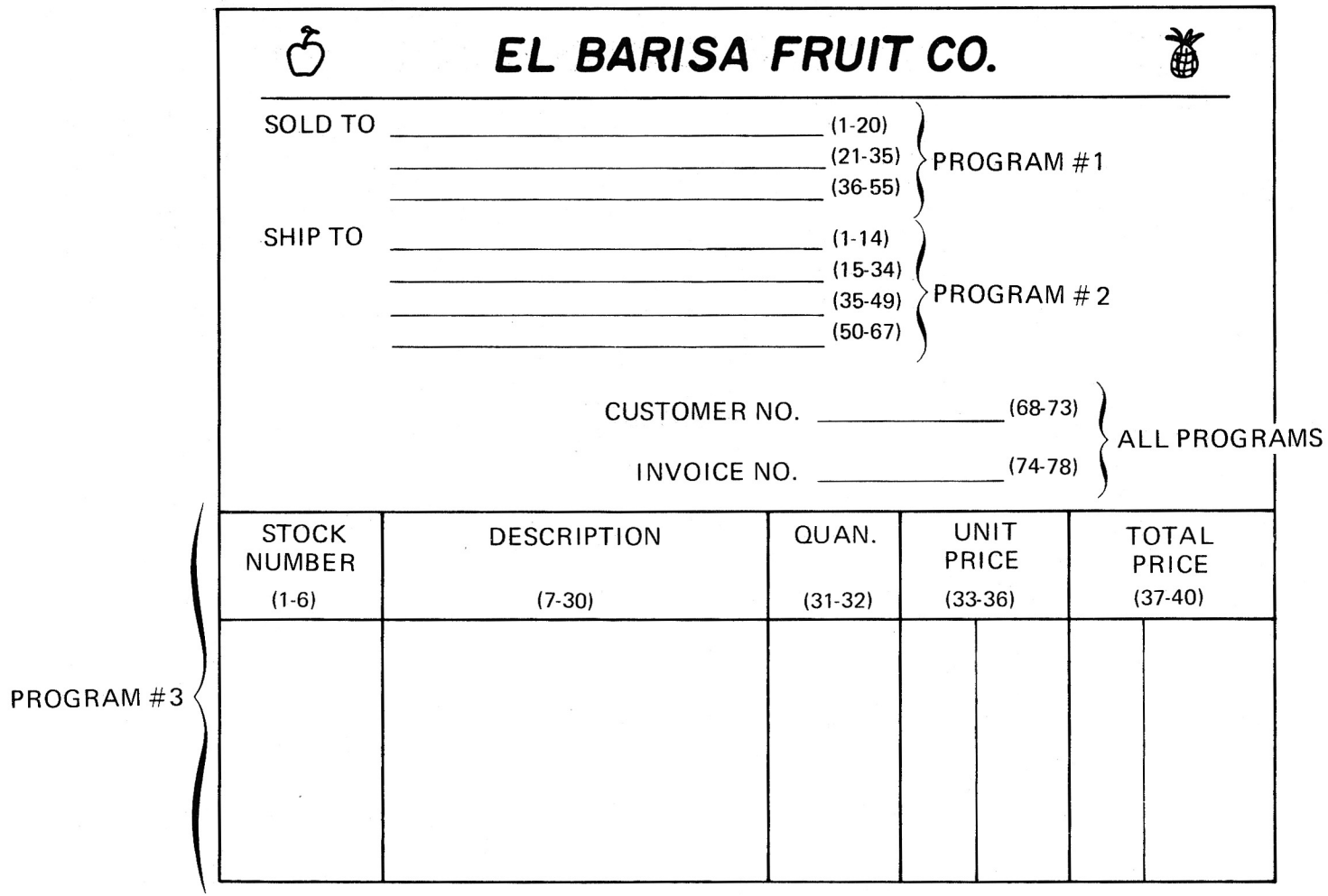
BREAK POINT

Multiple Programs

Why Have Multiple Programs

When using business forms, such as a Shipping Invoice, two or more record formats are used. The Shipping Invoice uses three formats.

With the 3742 it is possible to have different programs in the storage areas and select them for the appropriate record. For example, program 1 could be selected for the SOLD TO records, program 2 for the SHIP TO records and program 3 for each of the items in the body of the invoice.



To Use Multiple Programs

The following description and chart list the steps to be used in Exercise 7-3. Read through these steps then refer to them as you do the exercise.

1. Each program must be loaded into its own storage area. This example uses 1-2-3.

2. Select Enter mode.

3. Turn AUTO REC ADV on.

4. Select the program in storage area 1.

5. Key the SOLD TO information. Use the SKIP key to get from position 55 to poisition 68.

   Key the CUSTOMER NUMBER and the INVOICE NUMBER into the SOLD TO record. They will be duplicated into all following records.

6. Turn the Auto Dup/Skip switch on to allow auto duplication and skipping in the next records.

7. Select program 2.

8. Key the information from the SHIP TO area of the form. The customer and invoice numbers will be automatically duplicated.

9. Select program 3.

10. Key the items from the bottom of the form. The machine will skip positions 41 through 67 and duplicate the customer and invoice numbers.

11. After the last item from the invoice has been entered turn the Auto Dup/Skip switch OFF to get ready for the next invoice.

MAJOR STEPS IN USING MULTIPLE PROGRAMS

1. Load the three programs into storage areas 1, 2, and 3.
2. Select Enter mode.
3. Turn the AUTO REC ADV switch on.

STARTING EACH INVOICE

4. Select program 1.
5. Key the SOLD TO information, including customer and invoice number.
6. Turn the AUTO DUP SKIP switch on.
7. Select program 2.
8. Key the SHIP TO information.
9. Select program 3.
10. Key all items from bottom of the invoice.
11. After last item turn AUTO DUP SKIP switch off.

GO TO STEP 4 FOR THE NEXT INVOICE

Repeat steps 4 through 11 for each invoice.

Note: Use the NUM SHIFT key for numbers in the addresses of the SOLD TO or SHIP TO records.

Refer to this description when necessary during the next machine exercise.

Machine Exercise 7-3: Using Multiple Programs

This exercise will use three programs and two shipping invoices. Refer to the preceding descriptions as necessary to determine when to do each step associated with activating programs and using switches.

Directions

1 Ready the machine with the student diskette inserted. (Turn the AUTO REC ADV switch off.)

2 Key the following program code characters into the display screen then load them into stoarge area 1 (FUNCT SEL lower, PROG LOAD, 1, keys).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	A	·	·	·	·	·	·	·	·	·	·	·	·	·	·	A	·	·	·	·

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
·	·	·	·	·	·	·	·	·	·	·	·	·	·	S	-	-	-	-	-	-	-	-	-	-	-	-	N	-	-	-	-	-	N	-	-	-	-	S	E

3 Key the following program code characters into the display screen then load them into storage area 2 (FUNCT SEL lower, PROG LOAD, 2, keys).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A	·	·	·	·	·	·	·	·	·	·	·	·	·	A	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	A	·	·	·	·	·

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
·	·	·	·	·	·	·	·	·	A	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	D	-	-	-	-	-	D	-	-	-	-	S	E

4 Key the following program code characters into the display screen, then load them into storage area 3 (FUNCT SEL lower, PROG LOAD, 3, keys).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
N	-	-	-	-	-	A	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	N	-	N	-	-	-	N	-	-	-

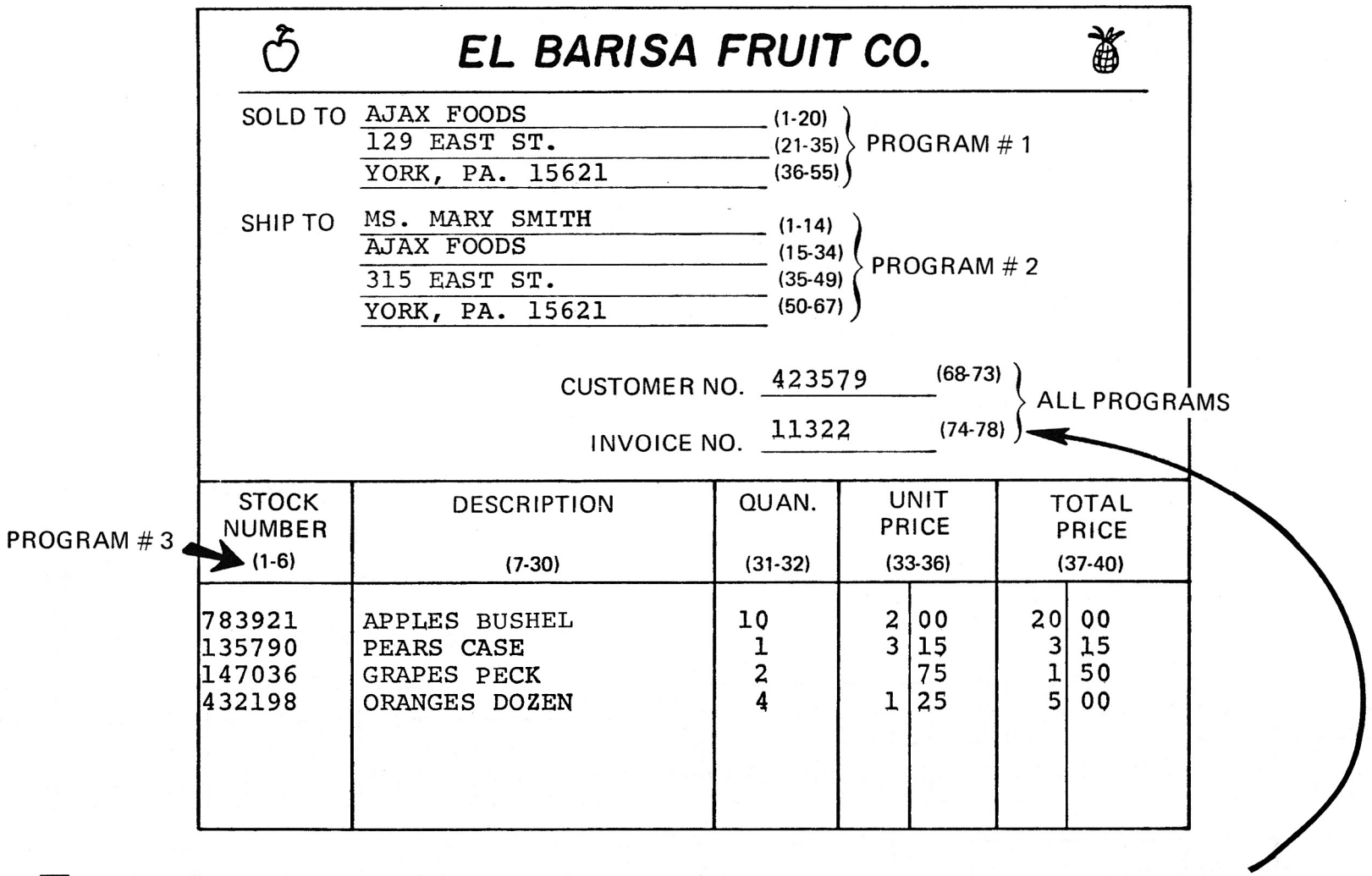
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	-	-	-	-	-	D	-	-	-	-	S	E

5 Activate program storage area 1 (SEL PROG and 1 key).

6 Turn the AUTO REC ADV switch on.

Continued on next page.

7 Key the information from the following two shipping invoices. Refer to the MAJOR STEPS chart as required.



EL BARISA FRUIT CO.

SOLD TO
AJAX FOODS (1-20)
129 EAST ST. (21-35)
YORK, PA. 15621 (36-55)
} PROGRAM # 1

SHIP TO
MS. MARY SMITH (1-14)
AJAX FOODS (15-34)
315 EAST ST. (35-49)
YORK, PA. 15621 (50-67)
} PROGRAM # 2

CUSTOMER NO. 423579 (68-73)
INVOICE NO. 11322 (74-78)
} ALL PROGRAMS

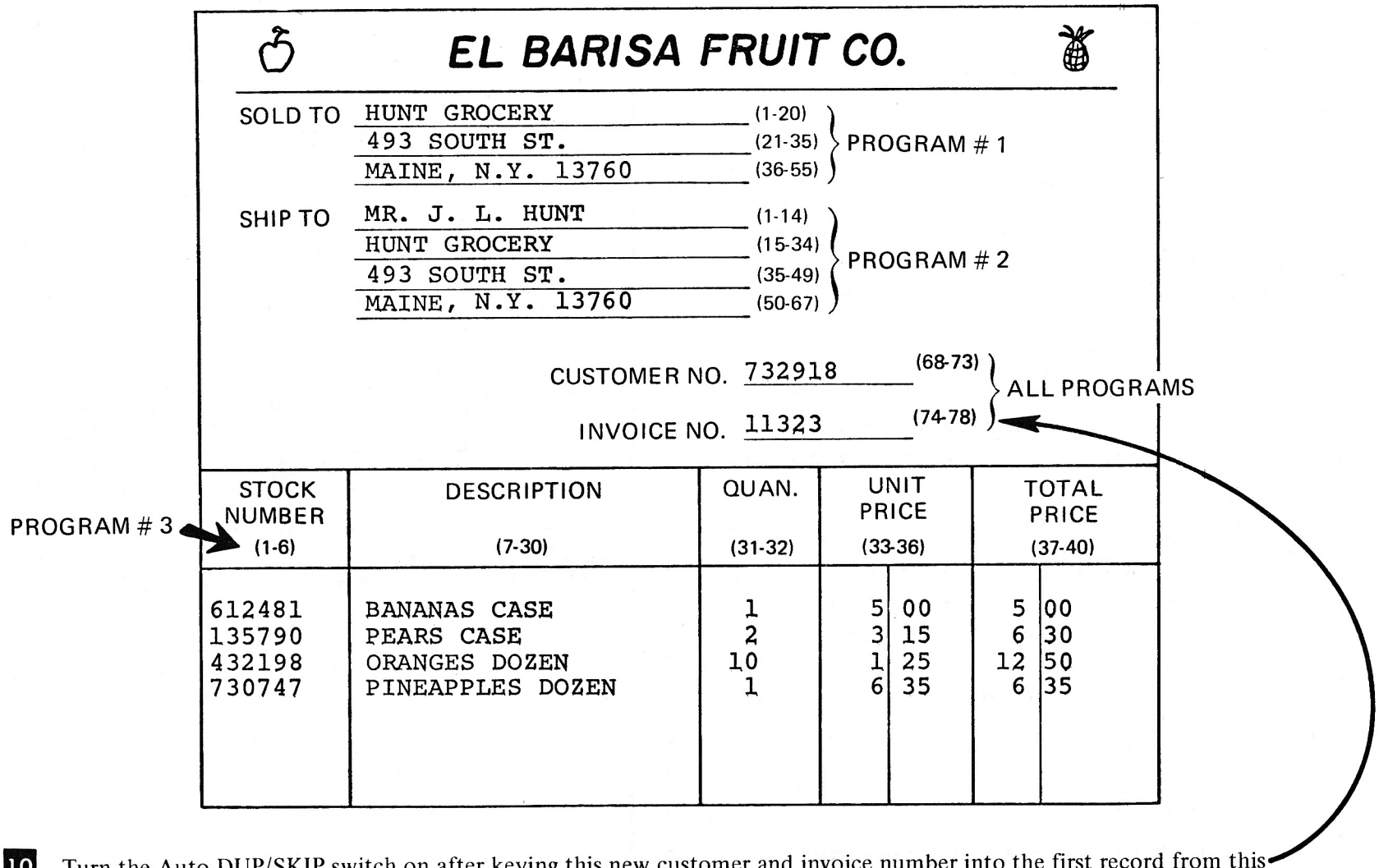
PROGRAM # 3

STOCK NUMBER (1-6)	DESCRIPTION (7-30)	QUAN. (31-32)	UNIT PRICE (33-36)	TOTAL PRICE (37-40)
783921	APPLES BUSHEL	10	2 00	20 00
135790	PEARS CASE	1	3 15	3 15
147036	GRAPES PECK	2	75	1 50
432198	ORANGES DOZEN	4	1 25	5 00

8 Turn the Auto DUP/SKIP switch on after keying the customer and invoice numbers into the first record from this invoice.

Continued on next page.

9 Turn the Auto DUP/SKIP switch OFF before starting this invoice.



10 Turn the Auto DUP/SKIP switch on after keying this new customer and invoice number into the first record from this invoice.

11 Return the machine to Index mode. Open the cover on the disk unit.

END OF THE EXERCISE

BREAK POINT

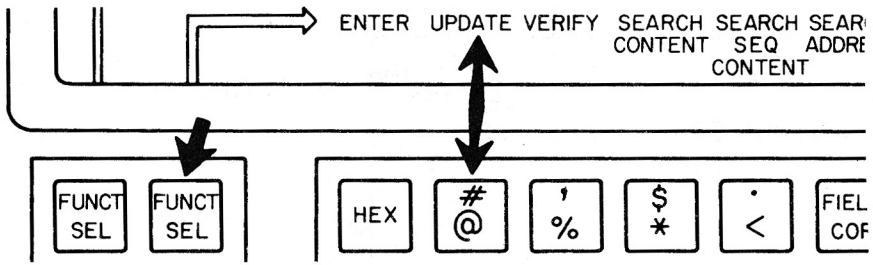
Loading Programs from Diskette

When many programs are used for a job, such as the shipping invoice, they may be loaded faster and with less chance for error from a diskette. This topic will teach you how to write the programs onto diskette and to load them into the machine for use.

Update Mode

The update mode of operation is used to display records from the diskette.

To select Update mode press the FUNCT SEL lower then the UPDATE function keys.



With the machine in update mode each record on the diskette may be displayed by pressing the REC ADV key as often as required.

Creating and Using the Diskette

Programs are keyed onto a diskette using the same procedure you would use to key a data record. A program diskette will contain only programs. You will not use the same diskette for data records.

A Checklist for Using Program Diskettes

Figure 7-1 is a checklist that you may use when loading programs.

CREATING THE PROGRAM DISKETTE

RECORD EACH PROGRAM ONTO THE DISKETTE USING THE NORMAL ENTER MODE PROCEDURE.

USING THE PROGRAM DISKETTE

1. Insert the program diskette.
2. Select UPDATE mode to display the first program.
3. Load the program from the display screen into the appropriate storage area (FUNCT SEL, PROG LOAD).
4. Record advance to display the next program.

REPEAT STEPS 3 AND 4 UNTIL ALL PROGRAMS HAVE BEEN LOADED.

5. Return to Index mode.
6. Remove the program diskette.
7. Insert the diskette for the production job.
8. Follow the normal steps for the job. You may skip the loading program step.

Note: IF THE MACHINE POWER IS TURNED **OFF** ALL PROGRAMS MUST BE RELOADED INTO THE ELECTRONIC STORAGE AREAS.

Figure 7-1 Checklist for program diskettes.

Creating the Program Diskette

1. Obtain the programs and a diskette from your supervisor. Follow the special keying instructions if any.

2. Record the programs onto the diskette using ENTER mode. All switches should be OFF and program zero should be active while entering the programs.

3. Remove the diskette from the machine and identify it so that it will not mistakenly be used for data records.

Using the Program Diskette

A diskette may have many programs recorded on it. Each day, or before each job, insert the diskette and load the desired programs into the machine. By loading all the programs at one time you may skip the program loading step for each job.

Machine Exercise 7-4: Creating a Program Diskette

This exercise *Creating the Program Diskette*, will write 3 programs onto a diskette for use in the following exercise.

Two diskettes are used in Exercise 7-4. You may use your student diskette for both of them but using separate diskettes is preferred. If possible obtain a diskette from your supervisor or advisor for temporary use. If a second diskette is not available use your student diskette as directed.

Directions

1. Insert the second diskette (or student diskette) into the machine.
2. Turn all switches off and select Enter mode.
3. Key the following program into the display screen then press REC ADV to write it onto the diskette.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	E	

4. Key the following program into the display screen then press REC ADV to write it onto the diskette.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
N	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	E	

5. Key this third and last program into the display screen then press REC ADV to write it onto the diskette.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
N	–	–	–	–	A	•	•	•	•	N	–	–	–	A	•	•	•	•	E	

6 Return the machine to Index mode.

7 Remove the diskette from the machine and identify it as the program diskette.

END OF THE EXERCISE

Machine Exercise 7-5: Loading Programs from a Diskette

In this exercise you will load the programs from the diskette into the machine storage areas.

Next you will insert the second diskette and select Enter mode.

Finally you will select and display each of the three programs to ensure that the loading was done correctly.

There will be no data entered in this exercise.

Directions

1. Insert the program diskette.
2. Select UPDATE mode (FUNCT SEL lower, and UPDATE keys).
3. Load the first program from the display into storage area 1 (FUNCT SEL lower, PROG LOAD, and 1 keys).
4. Press REC ADV to display the second program.
5. Load the second program from the display into storage area 2 (FUNCT SEL lower, PROG LOAD, and 2 keys).
6. Press REC ADV to display the third program.
7. Load the third program from the display into storage area 3 (FUNCT SEL lower, PROG LOAD, and 3 keys).
8. Return to Index mode.
9. Remove the program diskette from the machine.

The programs are now loaded into the machine. The next steps will check to ensure that they were correctly loaded.

1. Insert the student diskette.

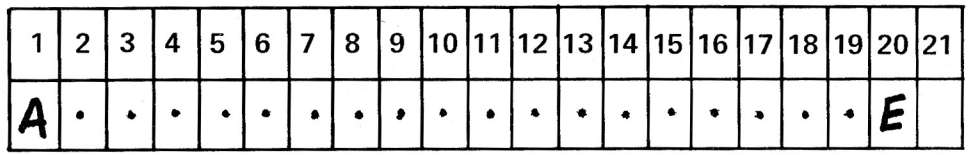
If the programs are on a different diskette go on to step 2.

If you were unable to obtain a second diskette there is no problem. It is important, though, that you realize that if data is written on the student diskette the programs will be erased and they would no longer be available from the diskette.

2 Select ENTER mode.

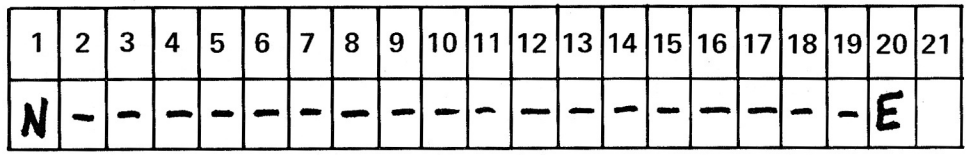
3 Activate program 1 (SEL PROG, and 1 keys).

4 Display the program (FUNCT SEL, DISPLAY PROG keys) and compare it to this figure. If it doesn't compare exactly, see the note following the exercise.



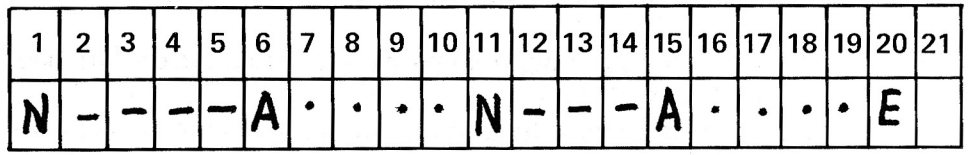
5 Activate program 2 (SEL PROG, and 2 keys).

6 Display the program and compare it to this figure (FUNCT SEL lower, and DISPLAY PROG keys).



7 Activate program 3 (SEL PROG, and 3 keys).

8 Display the program and compare it to this figure (FUNCT SEL lower, and DISPLAY PROG keys).



At this time all three programs are loaded into the machine. If this had been a normal production job you could enter data after activating the appropriate program.

Continued on next page.

9 Return the machine to Index mode.

10 Remove the diskette from the machine.

Note: If any programs do not agree with the figures check the following:

- Were the programs loaded from the correct disk and disk addresses?
- Were the programs loaded into the correct storage areas?
- Were the programs correctly keyed onto the disk?
- Is the correct program active? Check the status line.

BREAK POINT

Using Dashes and Periods in the Same Field

Some fields have both alphabetic and numeric characters in them. To accommodate this need you may use dashes and periods in the same field to insure that the keyboard is in the correct shift.

Machine Exercise 7-6: Using Dashes and Periods in the Same Field

This exercise will be to load a program into the machine and note how the keyboard shift can be both alphabetic and numeric in the same field.

Directions

1. Ready the machine with the student diskette. (Turn the AUTO REC ADV switch off.)

2. Key the following program into the display screen, and load it into storage area 1 (FUNCT SEL lower, PROG LOAD, and 1 key).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
N	–	–	•	•	•	–	–	–	–	A	•	•	–	–	–	–	–	E

3. Select Enter mode (FUNCT SEL lower, and ENTER key).

4. Activate program storage area 1 (SEL PROG, and 1 key).

5. Turn ON the AUTO REC ADV switch and then key the following records into the diskette. Note how the keyboard is automatically shifted for each position of the record.

ACCOUNT DESCRIPTION										PRODUCT CODE							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	2	3	N	E	W	4	5	6	7	R	A	L	1	2	3	4	5
1	2	3	O	L	D	6	7	8	9	P	O	K	7	8	2	1	3
4	7	3	N	E	W	7	9	8	6	E	N	D	3	4	5	6	7

Continued on next page.

6 Return the machine to Index mode (FUNCT SEL lower, and RETURN TO INDEX keys).

END OF THE EXERCISE

Summary

This completes the sessions relating to program control of the machine. In Sessions 6 and 7 many checklists were used. You may find it useful to refer to them at any time while doing the exercises or while doing production work.

The topics in this session related to displaying and changing a program, the use of the field advance and field backspace keys, the use of the right adjust key and the use of the dash key for minus numbers in a right adjusted field.

The use of the programmed numeric shift switch, multiple programs, and loading programs from a diskette were also included.

For many of the jobs you will do, the program code characters will be provided. If you need to select your own codes, refer to Sessions 6 and 7 for examples of their use.

Another valuable reference is the Operator's Guide. Anytime you are uncertain how to use a machine function, or what to do for a flashing display screen error, refer to it for directions.

The information presented in sessions 6 and 7 that relates to programs also applies to the use of programs in the remaining sessions of the course.

BREAK POINT

Session 8: Adding/Deleting/Changing Records on Diskette

Introduction

To add, delete, or change data on a diskette the Search mode of operation is used to locate the correct record. The Update mode and the delete record function are used to make the change or deletion.

The topics presented in this session are:

1. Deleting records.
2. Searching for records to be deleted.
3. Searching for the end of data.
4. Restarting interrupted jobs.
5. Other types of searches.
6. Machine mode.

This session requires approximately 1 hour to complete.

Deleting Records

Why Delete Records

Every record written on a diskette occupies a specific diskette address. When the diskette is sent to the computer for processing, the computer automatically processes every record on the diskette. If an extra record had inadvertently been recorded it too would be processed and the result would be incorrect in the computer. An example of how an extra record could be inserted would be when the same record is keyed twice.

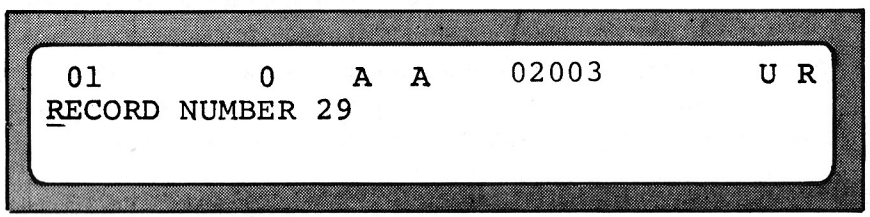
When an extra or unwanted record is on the diskette it must be identified in some way so that it will not be processed by the computer. A deleted record is not physically removed from the diskette, it is simply marked to identify it for the computer.

How to Delete a Record

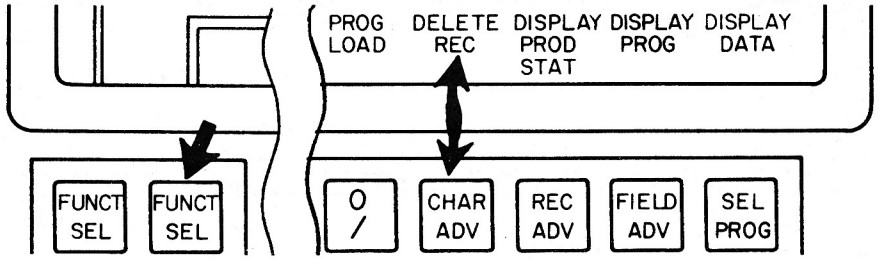
The following steps and figure illustrate how to identify a record on a diskette as being deleted.

1. Display the record to be deleted.
2. Press the FUNCT SEL lower, and DELETE REC keys.
3. Press REC ADV to rewrite the record onto the diskette.
4. The machine rewrites the record onto the diskette with a magnetic identifier for the computer and a D in position 1 to identify it for the operator.

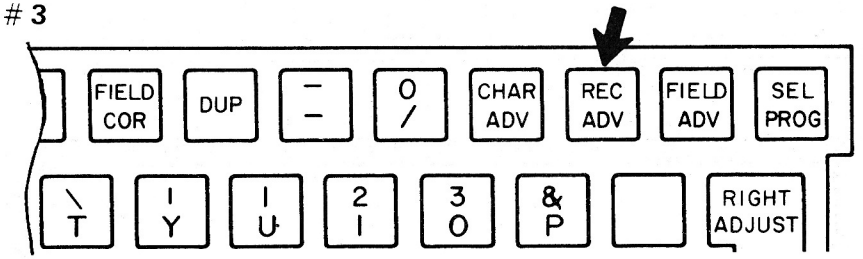
 # 1



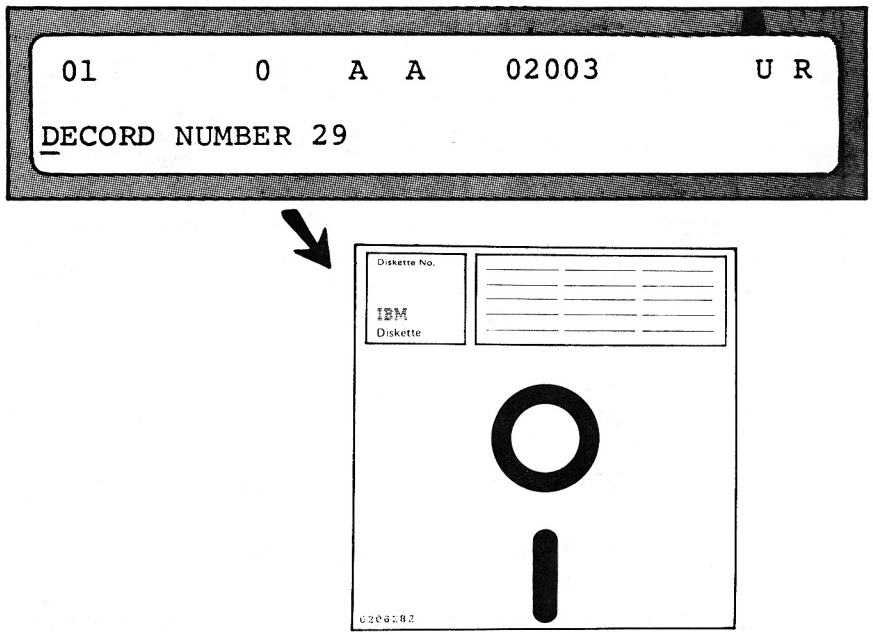
 # 2



 # 3



 # 4



Displaying Deleted Records

When a previously deleted record is displayed a flashing screen error code 6 occurs. This is not really an error. The indication is given to alert you that the record currently being displayed has been deleted.

Dual Functions for Delete REC Key

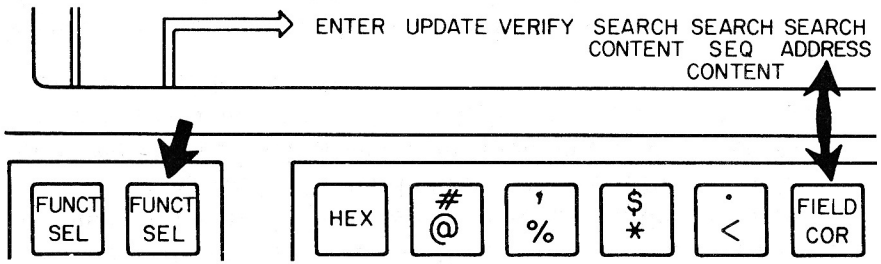
The DELETE REC function keys serve a dual purpose. You have previously seen how the delete record function keys are used to blank the display screen. This only occurs when the machine is in Index mode. If the machine is in any other mode the delete record function will mark the record as having been deleted.

Searching for Records to be Deleted

The Search mode of operation is available on the 3742 to allow searching for a specific record by using its diskette address.

To use the search function first press the FUNCT SEL lower and SEARCH ADDRESS keys.

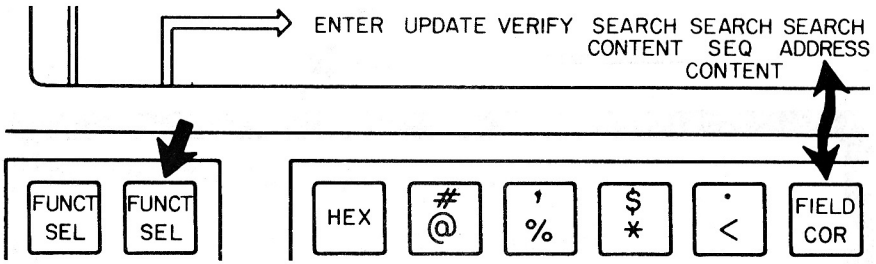
Next key the desired diskette address into the display screen and finally press the REC ADV key to initiate the search. When the record is found it is automatically displayed.



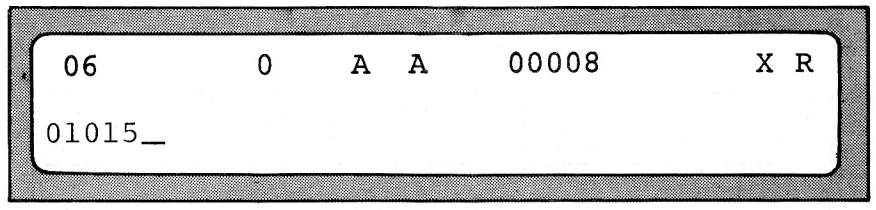
To search for the record at Track 01, Sector 15, the following steps would be performed.

1. Press the Function select keys for search address.
2. Key in the 5-digit Track and Sector address.
3. Press REC ADV to initiate the search.
4. The search stops with the desired record displayed. Note the current record address is 01015.

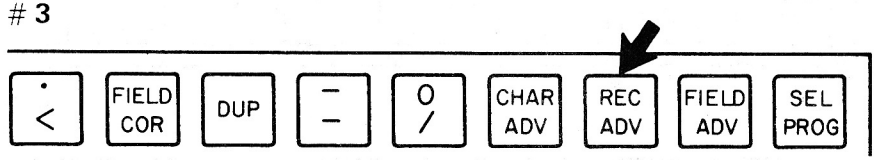
#1



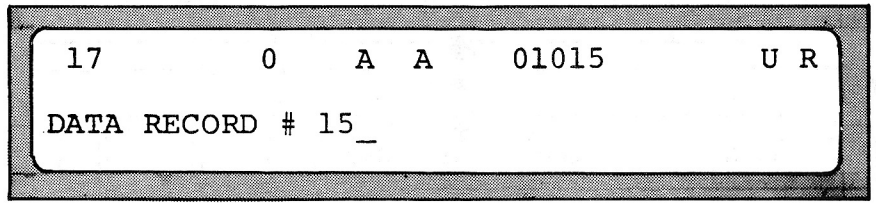
#2



#3



#4



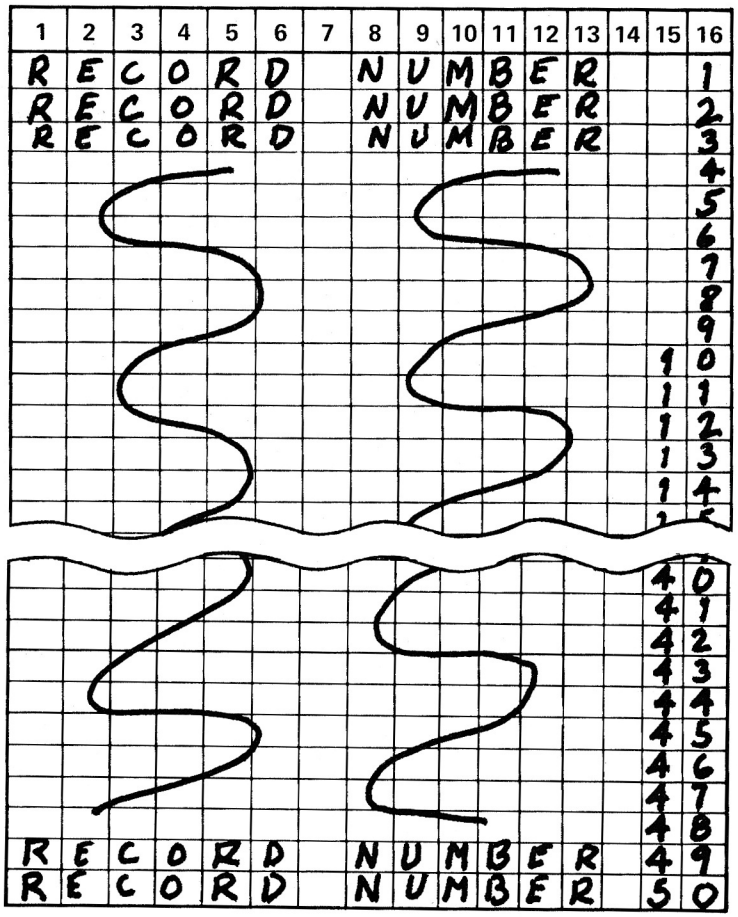
Machine Exercise 8-1: Using Search Address and Deleting a Record

This exercise will have you write 50 data records on the diskette. Then return to Index mode and use the Search address function to locate the record at Track 02, Sector 03, and delete it. After deleting the record you will redisplay the record to see the 6 error.

Directions

1. Ready the machine with the student diskette inserted.

2. Select Enter mode and key the following information onto the diskette.



3. Return the machine to Index mode (FUNCT SEL lower, RETURN TO INDEX keys).

4. Select the search address function (FUNCT SEL lower, SEARCH ADDRESS keys).

5. Key the 5-digit address for Track 02, Sector 03 (02003).

6. Press REC ADV to initiate the search.

7. With RECORD NUMBER 29 displayed, mark it as a deleted record (FUNCT SEL lower, and DELETE REC keys).

8. Press REC ADV to rewrite the record on diskette with the deletion indicators in it.

9. Press REC BKSP to redisplay the deleted record and notice the 6 error.

10. Reset the error (hold down NUM SHIFT and press RESET).

11. Return the machine to Index mode (FUNCT SEL lower, and RETURN TO INDEX keys).

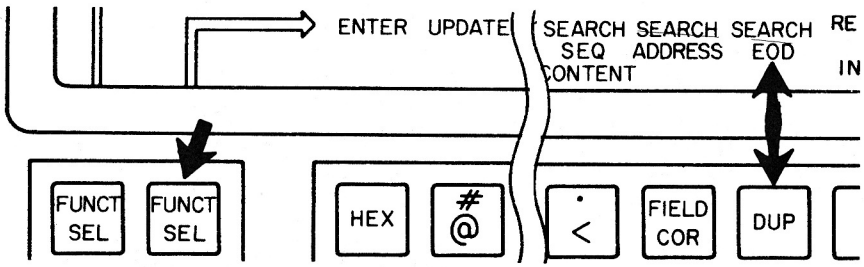
12. Open the cover on the disk unit.

END OF THE EXERCISE

Searching for the End of Data

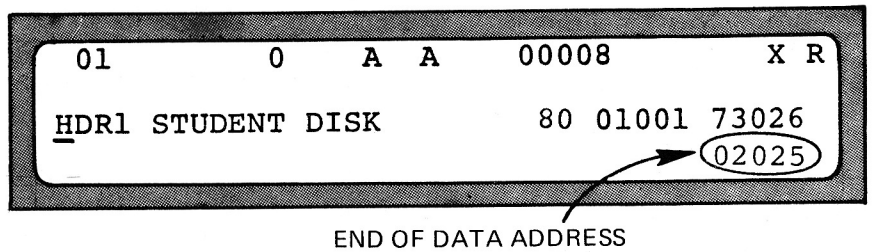
A second type of search available is the Search for the End of Data. This search is used to add more records to a previously written set.

To use the search for end of data, press the FUNCT SEL lower and SEARCH EOD keys. The machine will stop the search with the last record displayed. To add more records press the REC ADV key to get to the next available address and enter as many additional records as desired.



The End of Data Address

When using the search for end of data the machine determines the end of data address from the identification record (data set label) in Sector 8 of Track 00. The following figure shows where it is located in the identification record.



The end of data address is written into the identification record every time the machine returns to Index mode from enter mode. The number recorded as the end of data is one higher than the address of the last data record written. The machine takes this into consideration when doing a search on end of data.

Machine Exercise 8-2: Using the Search End of Data Function

This exercise uses the data records written in the preceding exercise and will use the Search End of Data to add an additional record to those already on the diskette.

Directions

1. Ready the machine with the student diskette containing the records from the previous exercise.
2. Write down the end of data address from the identification reload on the display screen.
3. Search for the end of data (FUNCT SEL lower, and SEARCH EOD).
4. With DATA RECORD 50 displayed, press REC ADV to get to the next available address.
5. Key the following information onto the diskette (address 02025).

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
D	A	T	A		R	E	C	O	R	D		#		5	1

6. Return the machine to Index mode and note the new End Of Data address in the identification record.

END OF EXERCISE

Restarting Interrupted Jobs

Any time you leave the machine before completing a job you should return the machine to Index mode. When you do this, the machine automatically writes the END OF DATA address in the identification record (data set label). When you return to restart the job you can use the Search for END OF DATA to reposition the diskette and continue entering data records.

Machine Mode

As the machine is performing any search, the mode is S. After the search is completed the machine is in update 'U' mode so you could change the displayed record if desired.

Other Types of Searches

Two other types of searches available are the Search on Content and the Search on Sequential Content. These two searches are described in the Operator's Guide. The use of these searches is not taught in this course but they are included in the advanced operator training course.

Reading Assignment

In the *Switches and Keys* section of the Operator's Guide read the descriptions of these keys:

- Delete record
- Record advance (Update mode only)
- Search address
- Search end of data
- Update

Summary

This session presented how to use the Search on Address operation to locate a record then delete it using the Delete Record function.

When deleted records are displayed, a '6' error indication is given, and a D is in the first position of the record to identify it for the operator.

Also presented was the use of the Search for End of Data for use in adding records to those already on the diskette, and for use in re-starting interrupted jobs.

BREAK POINT

Session 9: Verifying Data on Diskette

Introduction

Verifying is an operation similar to proofreading a typewritten report.

The verify operation is accomplished by inserting a previously written diskette and rekeying all of the data to compare it to that on the diskette.

If any mismatch exist the verify operator corrects the data on disk so that it will be correct for processing by the computer.

This session will show how to use the Verify mode of operation.

The topics presented in this session are:

1. What is verification.
2. Causes of a mismatch error.
3. Four mismatches in the verify exercise.
4. Description and illustration of mismatches.
5. Using duplication and skipping.
6. Selective verification.
7. Using the same program for Enter and Verify modes.

This session requires approximately 1½ hours to complete.

What is Verification?

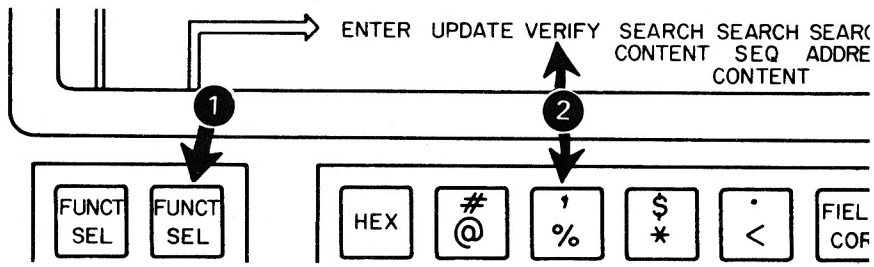
Verification is a process similar to proofreading a typewritten report. To perform a verification operation a previously recorded diskette is inserted and the source data is rekeyed using the Verify mode of operation to detect any incorrect characters on the diskette. If a mismatch exists the verify operator corrects the data before continuing.

The Verify Operator's Responsibility

The verify operator is normally responsible for the accuracy and completeness of all data on the diskette so that it will be correctly processed by the computer.

How Verification is Accomplished

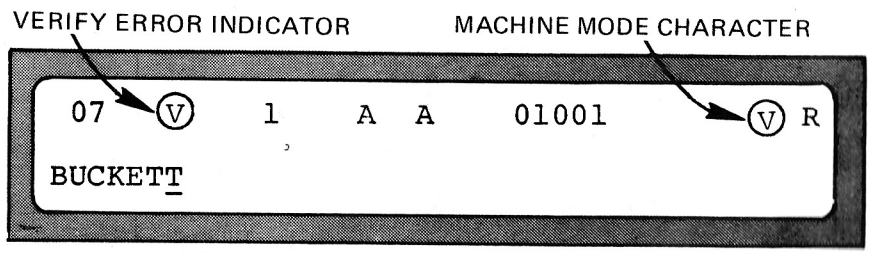
To verify previously recorded data on a diskette, the diskette is inserted into the machine and the Verify mode of operation is selected using the function select keys.



With the machine in Verify mode the original data is rekeyed and each character on the diskette is compared to the characters being keyed. When a mismatch is detected, the machine gives a V error and the keyboard becomes inoperative. After a mismatch error occurs, the operator rechecks the source information to determine what the correct character should be. The error is then reset and the operator rekeys the character to correct the diskette.

Status Line with an Error Indicator

The following figure shows a V error indicator and the machine mode character of V for verify.



Machine Exercise 9-1: Creating a Diskette to be Verified

Before continuing the session on verify operations, complete this exercise to enter records on the diskette for use in a later verify exercise.

Directions

1. Ready the machine with the student diskette.
2. Key the following program into the display screen.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
A	•	•	•	•	•	•	•	•	•	N	-	-	-	-	N	-	-	-	-	N	-	-	-	A	E

3. Load the program into storage area 1 (FUNCT SEL lower, PROG LOAD, and 1 key).
4. Select Enter mode (FUNCT SEL lower, and ENTER keys).
5. Activate the program in storage area 1 (SEL PROG and 1 keys).

6 Key the following source information into the indicated positions.

DESCRIPTION										NUMBER					QUANTITY					PRICE				CODE
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
B	U	C	K	E	T	T				1	1	5	6	0				1	0	2	6	0	0	C
C	O	M	P	O	T	E				4	3	9	6	0		1	5	3	0	1	6	0	0	C
P	I	T	C	H	E	R				2	4	1	1	7			2	1	0	1	9	5	0	C
B	O	W	L							1	0	6	9	9				2	5	1	6	5	0	C
C	A	S	S	E	R	O	L	E		7	2	3	5	7					5	3	8	5	0	C

7 Return the machine to Index mode (FUNCT SEL lower, and RETURN TO INDEX).

8 Open the disk unit cover and save the diskette for use in later exercises.

END OF THE EXERCISE

Causes of Mismatch Errors

A mismatch can occur for any of the following reasons:

1. Operator presses the wrong key while verifying.
2. Incorrect character on the diskette.
3. An entire field is incorrect.
4. A record is missing from the diskette.
5. An extra record is on the diskette.
6. Too many or too few characters in a right adjust field.

The following is a brief description of the error types and the correction for each.

Following the descriptions there is an example of a verify operation showing the procedures and the records as they appear on the display screen.

Operator Presses Wrong Key While Verifying

If the wrong key is pressed while verifying a V error will occur because of the mismatch. Press RESET to stop the flashing display then rekey the correct character to continue.

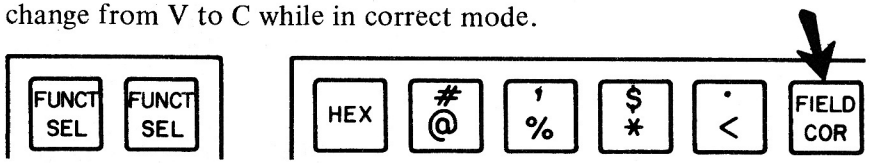
Incorrect Character on the Diskette

When an incorrect character is on the diskette, a V error will occur when the correct character is keyed. After double-checking the source information to determine what the correct character should be, reset the flashing screen, then rekey the correct character to replace the incorrect character on the diskette.

An Entire Field is Incorrect

When an entire field is incorrect the field must be keyed twice. The first time it is keyed with the machine in Field Correct mode then the cursor automatically repositions to the first position of the field so that the same information can be rekeyed to verify it.

To place the machine in Field Correct mode, reset the flashing display, then press the FIELD COR key. The machine mode will change from V to C while in correct mode.



When the wrong number of characters are in a right adjusted field an R error will occur. To correct an R error place the machine in field correct mode (FIELD COR key), then rekey the field twice using the RIGHT ADJ key each time.

A Record is Missing from the Diskette

When a missing record is detected it is the verify operator's responsibility to either add it behind those on the diskette using the search EOD, or to follow any special procedures defined in the job instructions.

An Extra Record is on the Diskette

When an extra record is on the diskette, it is the verify operator's responsibility to use the DELETE REC function to identify the record as a deleted one so that it will not be processed by the computer.

Four Mismatches in the Verify Exercise

The source document used in the verify exercise contains four different mismatches.

The mismatches are identified by arrows on the form.

1. The first mismatch is the extra T in *bucket*. The correction will be to key a blank into position 7.

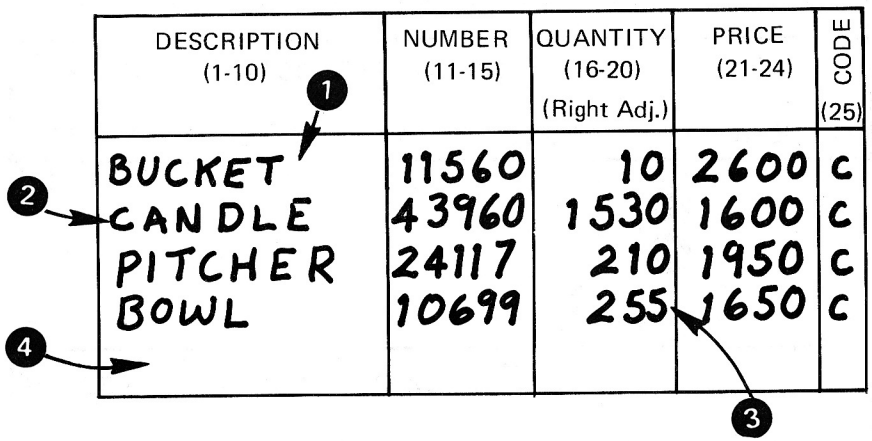
2. The second mismatch is the description field in the next record. The entire field is wrong and field correct will be used to correct it.

3. The third mismatch is the quantity field in record four (BOWL). RIGHT ADJ is used for this field and field correct will be used to correct it.

4. The last mismatch is an extra record on the diskette. The delete record function will be used to mark it as a deleted record.

The description and illustration of mismatches, on the following pages, give the steps to use in correcting each of the four types.

Source Data for Verifying



DESCRIPTION										NUMBER					QUANTITY					PRICE				CODE
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
B	U	C	K	E	T	T				1	1	5	6	0				1	0	2	6	0	0	C
C	O	M	P	O	T	E				4	3	9	6	0		1	5	3	0	1	6	0	0	C
P	I	T	C	H	E	R				2	4	1	1	7			2	1	0	1	9	5	0	C
B	O	W	L							1	0	6	9	9				2	5	1	6	5	0	C
C	A	S	S	E	R	O	L	E		7	2	3	5	7					5	3	8	5	0	C

Original Data Entered on the Diskette

Description and Illustration of Mismatches

The following description and figures illustrate how each record/mismatch, and the procedures used to correct them will appear on the display screen. You may refer to this description later as you do exercise 2.

1. After verify mode is selected the first record is displayed so it can be visually checked to ensure that it is the correct one.

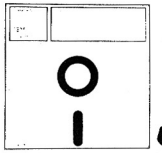
2. When the first character is keyed the remaining positions of the display are blanked so that the verify operator must rely on the source information to determine what to key.

3. The first error that will be encountered is the extra T in BUCKETT. When you press the space, a V error will occur and the cursor will indicate the position in which the mismatch occurred.

4. After keying the space twice, position 7 of the display unit accepts it as the correct character and you continue keying the remaining characters. After the REC ADV occurs the corrected record is written onto the diskette.

5. The next record from the diskette is immediately displayed for visual checking. The description field is completely incorrect and field correction will be used.

#1



```
 01          1    A  A    01001          V R
BUCKETT    11560    102600C
```

#2

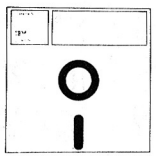
```
 02          1    A  A    01001          V R
B_
```

#3

```
 07    (V)   1    A  A    01001          V R
BUCKET_
```

#4

```
 26          1    A  A    01001          V R
BUCKET     11560    102600C_
```



#5

```
 01          1    A  A    01002          V R
COMPOTE    43960 15301600C
```

6. The FIELD COR key is pressed to place the machine in Correct mode. Next the entire description field is keyed onto the diskette to correct it.

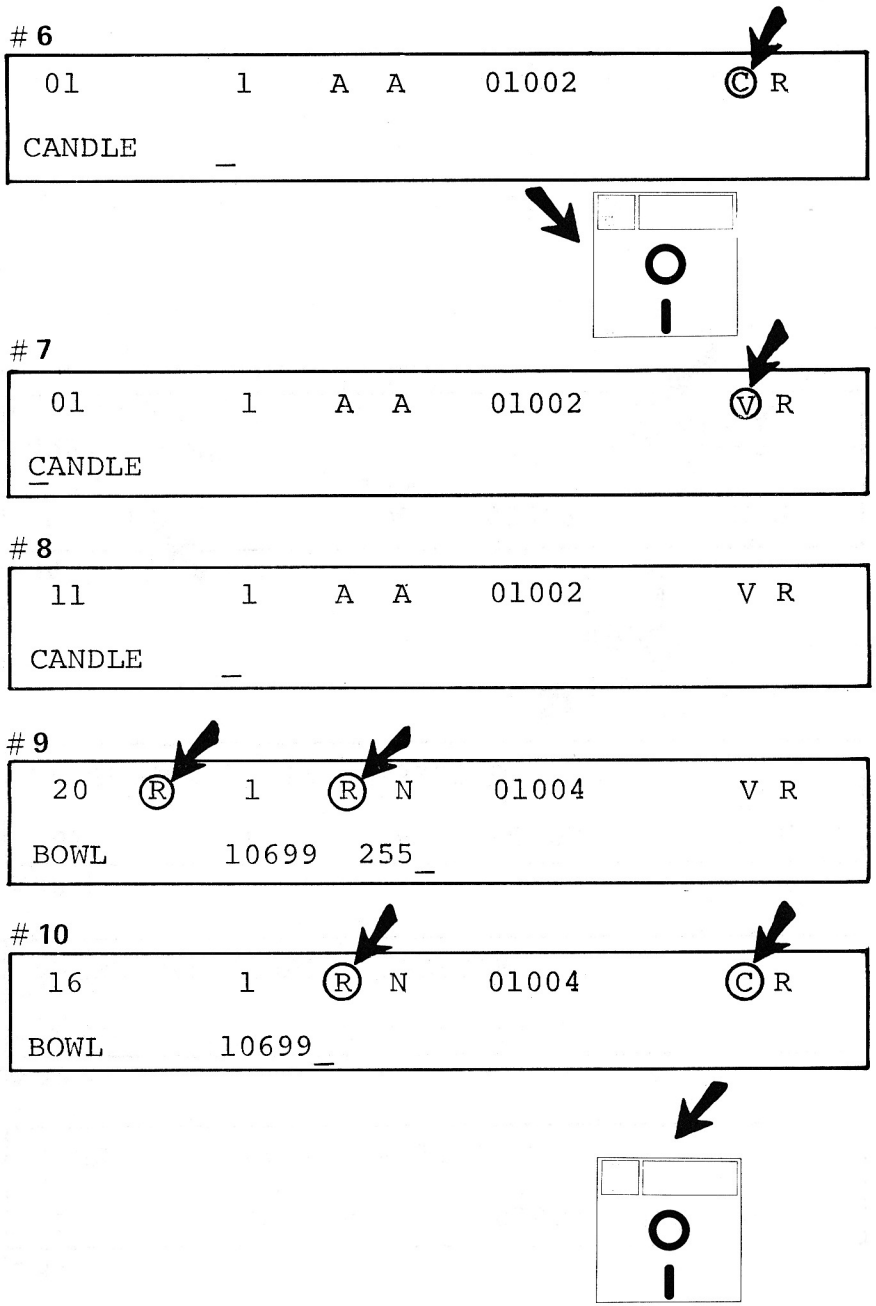
7. With the machine now in verify mode, the description field is rekeyed to verify it.

8. After verifying the description, continue by keying the remaining positions of the record.

There are no errors in the third record (PITCHER).

9. The next error is in the quantity field for the BOWL. The number on diskette is 25 and it should be 255. When the second 5 is keyed an R error occurs.

10. Press the FIELD COR key to place the machine in correct mode then key the 255 and use the RIGHT ADJ key to correct the data on the diskette.



11. Rekey the 255 using the RIGHT ADJ key again then continue by keying the remaining characters for the record.

12. The next record on the diskette is the CASSEROLE. For the exercise you will simulate that it is an extra record.

13. Use the FUNCT SEL lower and the DELETE REC function keys to mark it as a deleted record.

14. Ending the job. After deleting the CASSEROLE record return the machine to Index mode. When it returns to Index mode, an E error will occur along with a V in the indentification record to indicate that the data records have all been verified.

Summarizing Field Correct Mode

The field correct mode is used when an entire field is incorrect, or when an R (Right Adj) error occurs.

Use the following steps for Field Correct:

1. Reset the error.
2. Press the FIELD COR key.
3. Key the correct data into the entire field (use Right Adj if it is appropriate).
4. After the field is keyed the machine automatically returns to the beginning of the field for reverification.

 # 11

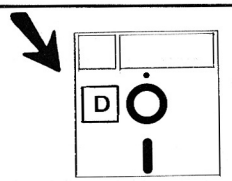
```
 26          1    A  A    01004          V R

BOWL       10699  2551650B_
```

 # 12

```
 01          1    A  A    01005          V R

_CASSEROLE 72357    53850B
```

 # 13

```
 01          1    A  A    01005          V R

_DASSEROLE 72357    53850B
```



 # 14

```
 01   (E)    0    A  A    00008          X R

_HDR1 STUDENT                80 01001 73026
                                    (V) 01004
```

Machine Exercise 9-2: Verify Source Data

In this exercise you will verify the source information recorded in the preceding exercise. The procedure to be used in correcting the mismatches is the same as that just described.

Directions

1. Ready the machine with the student diskette.

2. Key the following program into the display screen, then load it into storage area 1 (FUNCT SEL, PROG LOAD, 1 keys).

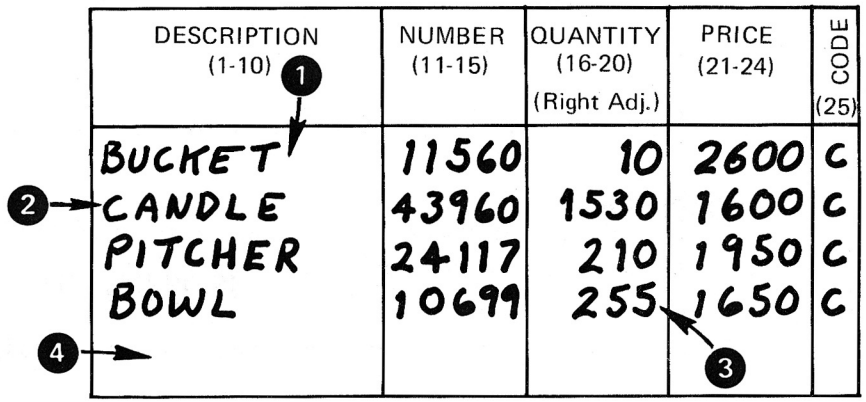
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
A	•	•	•	•	•	•	•	•	•	N	-	-	-	-	J	-	-	-	-	N	-	-	-	A	E

3. Select the Verify function (FUNCT SEL lower, and the VERIFY keys).

4. Activate program storage area 1 (SEL PROG and 1 keys).

5. Turn on the AUTO REC ADV switch.

6. Verify the data on the diskette using the following source information. Refer to the preceding description and illustration of mismatches when necessary.



Continued on next page.

7 Return the machine to Index mode (FUNCT SEL lower, and RETURN TO INDEX keys).

8 Open the cover on the disk unit.

END OF THE EXERCISE

BREAK POINT

Using Duplication and Skipping

The SKIP key and the DUP key may be used when verifying data, and the AUTO DUP/SKIP program control may also be used.

Duplicating in Verify Mode

When duplication is used in Verify mode the characters in the current record are compared to the characters in the corresponding positions of the previous record. If there is a mismatch a V error occurs, and the normal reset and correction is used.

Skipping in Verify Mode

When skipping in Verify mode, the machine checks the remaining positions of the field for blanks (spaces). If a mismatch occurs, the normal reset and correction is used.

Selective Verification

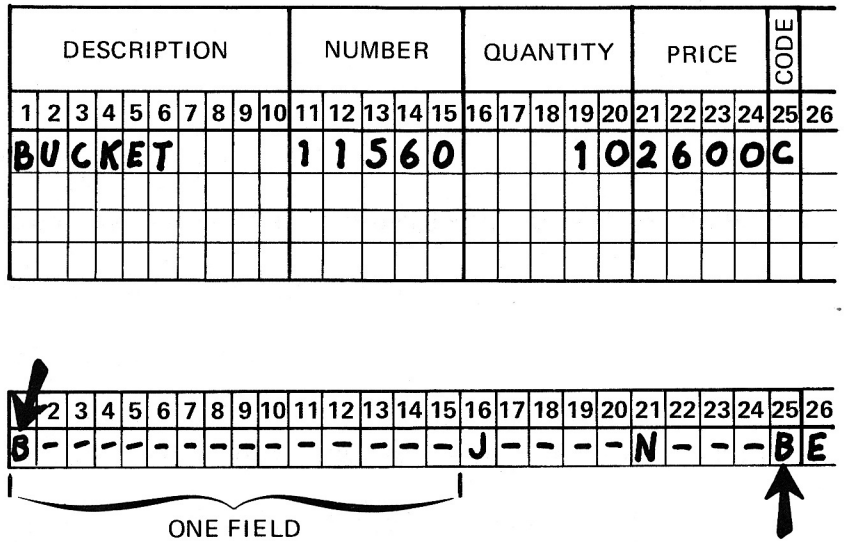
Some jobs only require that certain fields be verified. For example, the quantity and price may be the only fields in a very long job that must be verified.

If the auto skip program control is used, the machine checks each skipped position for a blank, and if any characters are there a mismatch occurs.

To allow for selective verification, the special Begin Field character B is provided.

When the Begin Field character B is used the machine automatically skips every position of the field regardless of the setting of the switch and there is no verification of the data in that field.

For example, the following program would allow for selective verification of only the quantity and price fields.



Note that positions 1 through 15 have been defined as one field, and a B code is in position 25. With this program in the machine, only positions 16-20 and 21-24 would be verified. The machine would ignore any characters in the other positions.

Using the Same Program for Enter and Verify

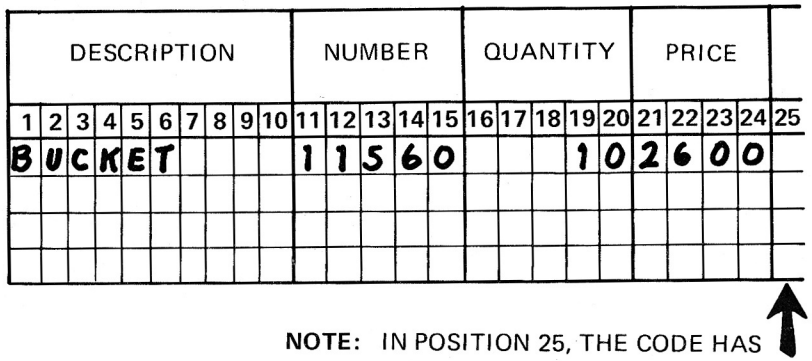
Special verify bypass codes are used when the same program is to be used for Verify and for Enter or Update mode. Refer to the following chart during the description.

Begin Field Codes Showing Verify Bypass Codes

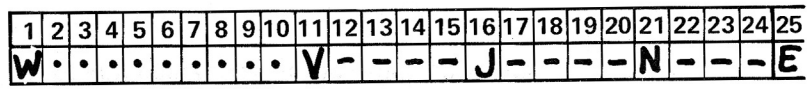
CODE	VERIFY BYPASS	SHIFT	FUNCTION
N	V	NUMERIC	MANUAL FIELD
A	W	ALPHA	MANUAL FIELD
J	Y	NUMERIC	RIGHT-ADJ blanks
R	X	NUMERIC	RIGHT-ADJ zeros
I	Z	ALPHA	RIGHT-ADJ blanks
B		none	BYPASS
D		NUMERIC	Auto DUP
U		ALPHA	Auto DUP
S		NUMERIC	Auto SKIP
K		ALPHA	Auto SKIP

If a field is to be a manual entry or right adjust field in Enter mode, and the same field is to be bypassed in Verify mode, the codes V,W, Y, X, and Z may be used. When these codes are used, they have the same function as the N, A, J, R, and I during Enter mode, but when used in Verify mode they act just like a B code.

For example, if the W and V codes in the following example had been used instead of the B code, the same program could be used for Enter and Verify modes with the same effect as in the selective verification example.



NOTE: IN POSITION 25, THE CODE HAS BEEN ELIMINATED FOR THIS EXAMPLE.



Reading Assignment

In the Operator's Guide read the description of the following:

In the section entitled *Programs,* subsection *Types of Fields Used in Programs:*

- BYPASS FIELDS
- VERIFY BYPASS FIELDS

READ the entire section entitled *Verify.* Then return to this point in the student guide.

Deleting Records During Verify

When an extra record is detected during a verify operation it is very important that the verify operator deletes it from the diskette by using the delete record function (FUNCT SEL lower, and DELETE REC keys).

This does not physically remove the record from the diskette, it simply places a D in position one and marks it with a magnetically recorded indicator so that it will not be processed by the computer.

Summary

The verify operation is the last opportunity to detect and correct data on the diskette before it is sent to the computer for processing. Although mismatches can occur in a variety of ways, the correction can be accomplished by rekeying the correct character twice in succession.

In addition to the verify mode of operation, the Field correct mode can be used to key an entire field, then rekey it for verification.

When a diskette has been successfully verified, an E error indication occurs, and a V appears in the identification record to indicate that the data was verified.

Duplication can be used in verify mode to eliminate repetitive keystrokes.

Skipping in verify mode causes the machine to check the positions for blanks.

Selective verification can be done by using the B bypass code, and a program can be used for Enter and Verify with Bypass by using the verify bypass codes.

For verify jobs, as with enter jobs, the job instructions should always be referred to before starting a job, and at any appropriate time during it.

When you must interrupt a verify job, refer to the Operator's Guide description of verify for hints on how to interrupt and restart a verify job.

Self-Evaluation Questions

1. TRUE or FALSE? The duplication function can not be used in Verify Mode.

2. In verify mode, what character does the machine check each position for when the skip function is used?

3. Which program code character(s) allow for selective field verification?

4. Assume that a 3 is in position 10 of a record. If you press a 2, reset the error and press the 2 again, what character will be in position 10 of the record?

5. What indication is in the identification record (Track 00, Sector 08) for a verified diskette?

6. What condition will cause an R error in verify mode?

7. What machine mode is used to correct R errors?

BREAK POINT

Answers to Self-Evaluation Questions

1. False, it may be used.
2. It checks for a blank (space) in the remaining positions of the field.
3. The B, V, W, Y, X, and Z.
4. A 2, because it was keyed twice in succession.
5. A V in the bottom right line.
6. Incorrect number of characters in a right adjusted field.
7. The field correct mode.

Session 10: Identification of Data on the Diskette

Introduction

The Identification record in Track 00 Sector 08 is used to control many 3742 operations and to tell the computer about the data recorded on the diskette.

These identification records, called *data set labels,* and the procedure for writing them on the diskette will be presented in this session.

The topics presented in this session are:

1. Using data set labels.
2. Multiple data sets on a diskette.
3. Writing data set labels on a diskette.
4. Using multiple data sets.
5. How to make room for more records.
6. REP key.
7. Other fields in a data set label.
8. Data set error code summary.

This session requires approximately 2½ hours to complete.

Using Data Set Labels

The Term Data Set

All the records for one job are collectively referred to as a *data set* on the diskette.

Data Set Labels

The identification records in track 00 are called data set labels.

```
 01          0     A  A     00008          X R
HDR1 STUDENT                 80 01001 73026
                                      01001
```

How Data Set Labels Are Used

Data set labels are used by the 3742, by the operator, and by the computer.

By the 3742

The 3742 uses the label to determine at which address to begin when a mode of operation is selected. It also uses it to determine the end of data address when the Search for End Of Data is used.

Later you will see that there can be multiple data sets on a diskette. The 3742 uses the labels to ensure that the records in one data set do not overflow into another data set's.

By the Operator

The operator uses the data set label to determine if the data has been verified, and if the correct diskette is inserted.

By the Computer

The computer uses the data set label to determine the data set name and its beginning and ending addresses on the diskette. The computer also uses the End Of Data address to determine how many records to process.

Other uses for the labels will be presented later in the session.

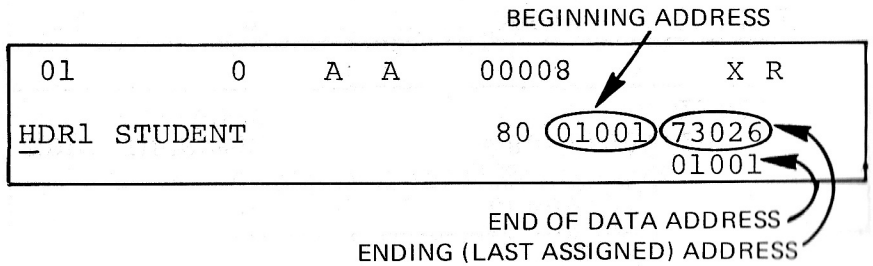
Multiple Data Sets on a Diskette

When the number of records in two or more data sets is small, the data sets can be placed on one diskette to use more effectively the space available. Each data set on a diskette must have its own label in the Index Track (00). The first label goes in sector 08, the second in sector 09, the third in sector 10, and so on until all data sets have been identified or until the last sector (26) has been used.

Generally there are only a few data sets on one diskette.

Beginning and Ending Addresses

So that the records from one data set do not overflow into another's area, each data set is assigned consecutive addresses. The beginning and ending addresses assigned are in each label.



The 3742 uses the beginning address to determine the starting record address when a mode of operation is selected. It uses the last assigned address to ensure that the records do not overflow their assigned addresses.

Multiple Data Set Example

The following figure and description illustrate how four data sets could be assigned to the same diskette.

Payroll

The payroll data set is assigned Track 01, Sector 01 through Track 10, Sector 26. Its label is in Sector 08 of Track 00.

Inventry

The inventry data set is assigned Track 11, Sector 01 through Track 20, Sector 26. Its label is in Sector 09 of Track 00.

Shipping

The shipping data set is assigned Track 21, Sector 01 through Track 30, Sector 26. Its label is in Sector 10 of Track 00.

Sales

The sales data set is assigned Track 31, Sector 01 through Track 40, Sector 26. Its label is in Sector 11 of Track 00.

The addresses in Track 41, Sector 01 through Track 73 Sector 26 are unassigned at this time.

Displaying the Correct Data Set Label

When you select a mode of operation or initiate a search operation the machine uses the addresses in the DISPLAYED data set label to determine where to start the operation.

When a diskette contains multiple data sets the correct label must be on the display *before* using any operation. The labels can be displayed by pressing the REC ADV key while in Index mode.

```
 01          0     A  A     00008          X R

HDR1 PAYROLL                  80 01001 10026
                                       01001
```

```
 01          0     A  A     00009          X R

HDR1 INVENTRY                 80 11001 20026
                                       11001
```

```
 01          0     A  A     00010          X R

HDR1 SHIPPING                 80 21001 30026
                                       21001
```

```
 01          0     A  A     00011          X R

HDR1 SALES                    80 31001 40026
                                       31001
```

For example, if you wished to enter data into the shipping data set, the label in Sector 10 must be on the display when Enter mode is selected.

1. What addresses would be selected if the label in Sector 9 were on the display when Enter mode was selected?

* * *

11001. Track 11, Sector 01. (See the beginning address for the INVENTRY data set.)

Writing Data Set Labels on the Diskette

To use the machine for production work data set labels, with the correct information, must be written in Track 00. In your office you may be given the information to be included or you may make the decision yourself as to what to include. In this course you will be given the information to use.

To write a label on the diskette the machine must be in Modify mode. Read through the following description and figures that show the steps to follow in writing the label, then refer to these steps later.

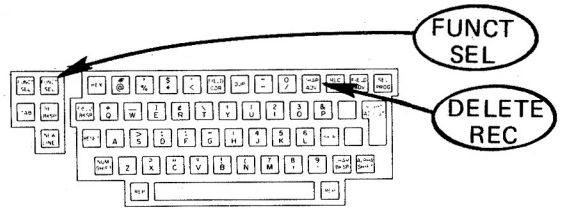
Use the REC ADV key to display the desired sector. This example will use Sector 08.

1. Blank the display screen (FUNCT SEL, DELETE REC).
2. Key the label information into the display.
3. Press FUNCT SEL lower and the M key to place the machine in Modify mode.
4. Press the REC ADV key to write the label into the current record address.

When you press the REC ADV key the machine remains at the current record address so you can recheck the label information.

To write additional labels, press the REC ADV key to display the next sector, then repeat steps 1 through 4. Refer to this description, as required, during the exercises.

#1



#1

```
 01          0     A  A     00008          X R


_
```

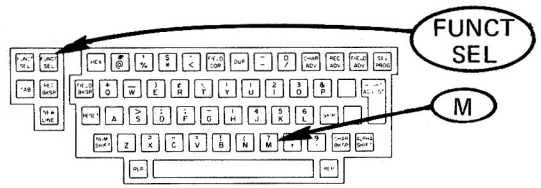
#2

Key the label information into the display screen.

#2

```
 80          0     A  A     00008          X R

HDR1 PAYROLL                  80 01001 73026
                                       01001_
```

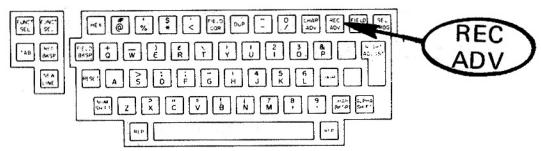
#3



#3

```
 80          0     A  A     00008          (M) R

HDR1 PAYROLL                  80 01001 10026
                                       01001_
```

#4



#4

```
 01          0     A  A     00008          X R

HDR1 PAYROLL                  80 01001 73026
                                       01001
```

Errors While Writing New Labels

A 6 or B error may occur as you display Sectors 9 through 26 prior to writing labels in them. This can happen if labels contain incorrect information or if they have been deleted. If a 6 or B error occurs *before* you write the label in the displayed sector, reset it and continue. If a 6 or B error occurs *after* you write the label, recheck and repeat the steps as appropriate.

HDR1 Label

This field identifies the record as a label. The fourth position of the HDR1 is a ONE. Be certain to key the correct character as you write the labels.

Machine Exercise 10-1: Writing Data Set Labels on the Diskette

In this exercise you will write four data set labels on the diskette using the procedure outlined in the previous examples.

You will be given the information to key into the labels and the sectors to be used will be identified.

Remember to be certain to key each character exactly as shown into the positions as shown.

If a B or 6 error occurs *before* writing a label in any sector, reset and continue. If an error occurs *after* writing the label, recheck and repeat the steps.

Directions

1. Ready the machine with the student diskette.

2. Write the following label into Sector 08. (FUNCT SEL lower, M key, and REC ADV.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
H	D	R	1		P	A	Y	R	O	L	L														8	0		0	1	0	0	1		1	0	0	2	6	

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
																																		0	1	0	0	1	

Continued on next page.

3 Write the following label into Sector 09. (FUNCT SEL lower, M key, and REC ADV.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
H	D	R	1		I	N	V	E	N	T	R	Y													8	0		1	1	0	0	1		2	0	0	2	6	

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
																																		1	1	0	0	1	

4 Write the following label into Sector 10. (FUNCT SEL lower, M key, and REC ADV.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
H	D	R	1		S	H	I	P	P	I	N	G													8	0		2	1	0	0	1		3	0	0	2	6	

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
																																		2	1	0	0	1	

5 Write the following label into Sector 11. (FUNCT SEL lower, M key, and REC ADV.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
H	D	R	1		S	A	L	E	S																8	0		3	1	0	0	1		4	0	0	2	6	

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
																																		3	1	0	0	1	

6 Open the cover on the disk unit.

7 Close the cover on the disk unit.

8 Use the REC ADV key and display each of the four labels just written. Check for accuracy and correct them as required.

9 Open the cover on the disk unit.

Save the diskette for use in later exercises.

END OF THE EXERCISE

BREAK POINT

Using Multiple Data Sets

To use one of the data sets on the diskette the correct label must be displayed *before* selecting a mode of operation. This includes Search operations also. For example, it is not possible to have the INVENTRY label displayed, and search for an address in the SALES data set. When an attempt is made to search for an address that is not within the limits of the displayed data set label, an I error occurs. The next exercise will illustrate this.

Extent

In the Operator's Guide the term *extent* is used when referring to the area assigned to a data set. The beginning address is called the Begin of Extent (BOE) and the last address assigned is called the End Of Extent (EOE).

I Error

When using multiple data set diskettes the correct label must be displayed before searching for an address. If an attempt is made to search for an address that is assigned to another data set an I error will occur.

This error situation will be illustrated in the next exercise.

Machine Exercise 10-2: Using Multiple Data Sets

In this exercise you will use the diskette from exercise 1 and enter information into the SALES data set, and you will enter records into the INVENTRY data set.
Then you will display the INVENTRY label, and try to search for a record in the SALES data set to cause an I error.

Directions

1. Ready the machine with the student diskette.

2. Display the correct label, and enter the following information as the first five records of the SALES data set.

1	2	3	4	5	6	7	8
S	A	L	E	S		#	1
S	A	L	E	S		#	2
S	A	L	E	S		#	3
S	A	L	E	S		#	4
S	A	L	E	S		#	5

3. Return the machine to Index mode.

4. Display the INVENTRY data set label (Track 00, Sector 09).

5. Enter the following three records into the INVENTRY data set.

1	2	3	4	5	6	7	8	9	10
I	N	V	E	N	T	O	R	Y	1
I	N	V	E	N	T	O	R	Y	2
I	N	V	E	N	T	O	R	Y	3

Continued on next page.

6 Return the machine to Index mode.

7 With the INVENTRY data set label displayed, search for address 31003, the third record in the SALES data set.

- Press FUNCT SEL lower, then SEARCH ADDRESS keys.
- Key on the address of 31003.
- Press REC ADV to initiate the search.

8 Reset the I error.

9 Display the SALES data set label (Track 00, Sector 11).

10 Search for address 31003, the third record in SALES data set. (See instructions in Step 7.)

11 Return the machine to Index mode.

12 Open the cover on the disk unit.

END OF THE EXERCISE

Exercise 10-2 Summary

To enter data into a data set, you must display the label for the desired data set, prior to selecting ENTER mode.

BREAK POINT

How to Make Room for More Records

When there are too many records for a given data set an E error will occur if you attempt to enter records into an address reserved for another data set. When the need exists for additional data set record space an unused data set can be deleted and its addresses assigned to the needy data set.

For example, ten tracks are assigned to the Payroll data set and ten are assigned to the Inventry data set. To take the ten away from the Inventry and assign them to the Payroll you first delete the label for the Inventry data set, then rewrite the Payroll label with a new End of Extent address.

Before changing the labels on any production diskette check your job instructions or check with your supervisor to ensure that you do not delete an active data set.

The description and figures on the next page illustrate how to change the Extent addresses and how to delete data sets to make room for more records.

Read through these steps, then refer to them later during the exercise.

1. Display the Inventry label.
2. Delete the label by pressing the FUNCT SEL lower, M, and DELETE REC keys. (Machine is in modify mode when deleting records from the Index track.)
3. Display the Payroll label.
4. Key the new End of Extent address into the display.
5. Write the new label in Sector 08 using the FUNCT SEL lower, M, and REC ADV keys.

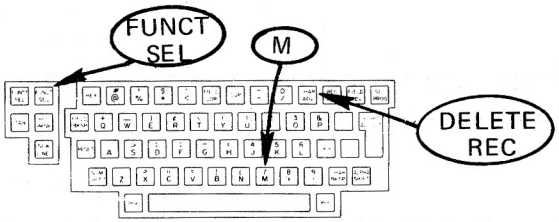
With the new End of Extent address the payroll data set can use all twenty tracks (01001 through 20026). With the label deleted the Inventry data set cannot be used.

CAUTION: Anytime you write or change data set labels you should display and check every Sector in Track 00 to ensure that you do not use the addresses assigned to another data set.

 # 1 **Display inventry label.**

```
# 1
 01          0    A  A    00009          X R

HDR1 INVENTRY                80 11001 20026
                                      11001
```

 # 2




```
# 2
 01          0    A  A    00009          M R

DDR1 INVENTRY                80 11001 20026
                                      11001
```

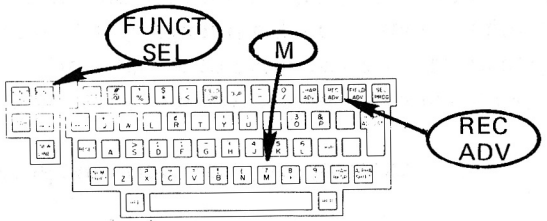
 # 3 **Display payroll label.**

```
# 3
 01          0    A  A    00008          X R

HDR1 PAYROLL                 80 01001 10026
                                      01001
```

 # 4 **Key new end of extent address.**

```
# 4
 40          0    A  A    00008          X R

HDR1 PAYROLL                 80 01001 20026
                                      01001
```

 # 5




```
# 5
 01          0    A  A    00008          X R

HDR1 PAYROLL                 80 01001 20026
                                      01001
```

Machine Exercise 10-3: Changing Data Set Labels

In this exercise you will display the records in Sectors 08 through 26 to check for active data sets. You will delete the Inventry data set and assign its addresses to the Payroll data set.

Refer to the preceding description and figures as required.

Directions

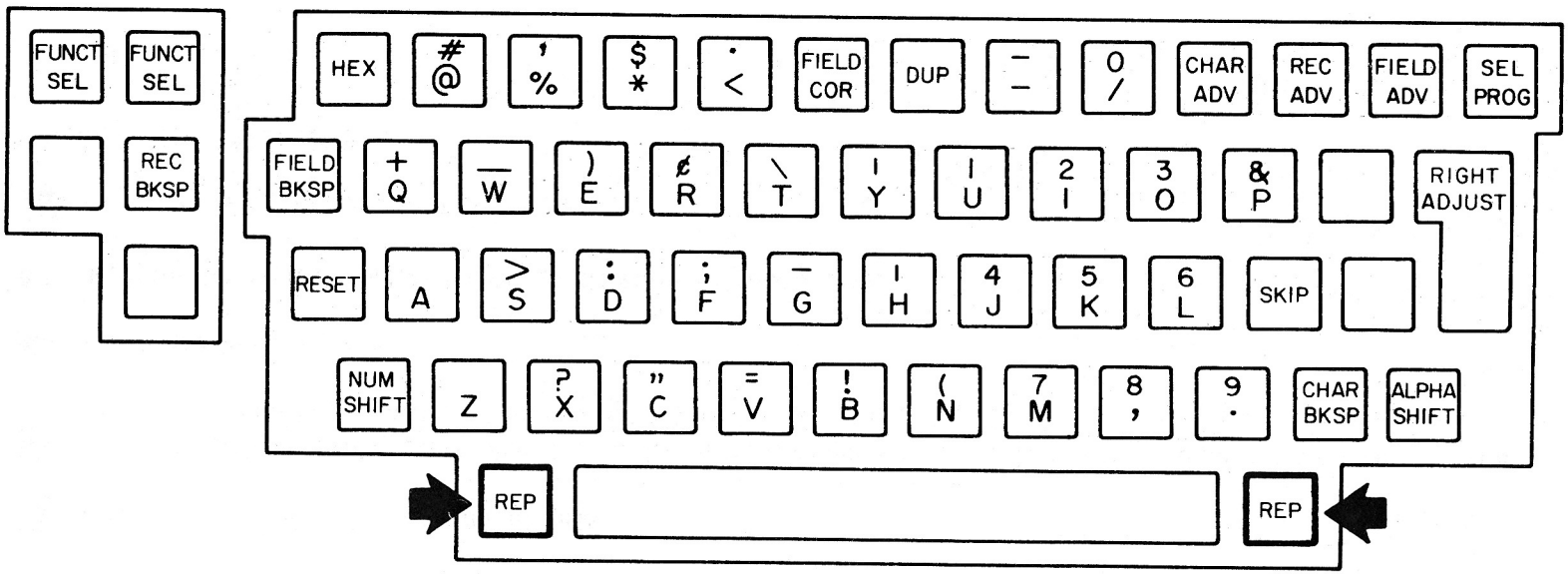
1. Ready the machine with the student diskette.
2. Use REC ADV to display every record from Sector 08 through Sector 26. If any active data sets are located, write their names, and Begin and End Extent addresses on a piece of paper.
3. Delete the Inventry label.
4. Rewrite the Payroll label with an End of Extent address of 20026.
5. Open the cover on the disk unit

END OF THE EXERCISE

REP Key

The REP key is used with any other key to cause its function to repeat itself. For example, by pressing the REP and CHAR ADV keys together the cursor will move across the display without repetitive keying. To illustrate this, close the cover on the disk unit and hold down the REP and CHAR ADV keys. Then return to this point in the student guide.

The REP key will be used with the REC ADV key in the next exercise to quickly advance the current record address. When used in this manner, the REC ADV writes blank records on the diskette.



Machine Exercise 10-4: Checking the Changed Data Set Labels

There are two parts to this exercise.

First you will display the Payroll label, select Enter mode, then record advance to Track 11 Sector 01 and write a record in it to prove that it is available to the Payroll data set.

Second you will display the INVENTRY label and attempt to select Enter mode. If it was correctly deleted in Exercise 3, a 6 error will occur when it is displayed and a B error will occur when you try to select Enter mode.

Directions

1. Ready the machine with the student diskette.
2. With the Payroll label displayed, select Enter mode and record advance to Track 11, Sector 01, and write the following record at that address.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
P	A	Y	R	O	L	L		T	E	S	T		R	E	C	O	R	D

3. Return to Index mode.
4. Display the INVENTRY label (a 6 error will occur).
5. Reset the error (NUM SHIFT, and RESET keys).
6. Attempt to select Enter mode (a B error will occur).
7. Reset the error (RESET key).
8. Open the cover on the disk unit.

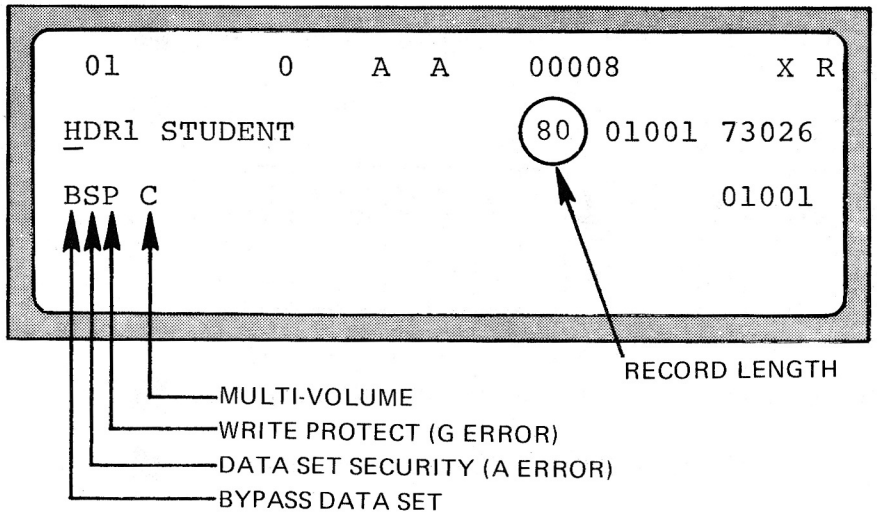
END OF THE EXERCISE

BREAK POINT

Other Fields in a Data Set Label

The other fields in a data set label are:

- Record length
- Bypass data set
- Data set security
- Write protect
- Multivolume



These fields are used by the computer, the 3747 Data Convertor, and the 3742.

Because the fields will affect the machine or computer operation you should refer to your job instructions or to your supervisor to determine which codes to use.

Record Length Field (Positions 25 - 26 - 27)

This field is used by the computer and the 3742. The number in it indicates the length of each record in the data set.

The computer will use this number to determine how many characters are in each record so that they may be correctly processed.

The 3742 uses this field to alert the operator when an attempt is made to enter too many characters into the display screen (record). For example, if the record length was 80, and an attempt was made to use more than 80 characters, a T error would occur.

If a T error should occur while doing an exercise or production work, check this field and ensure that it has the number indicated by the job instructions. If it does not, correct it. If the number is correct perhaps you are doing something wrong. Recheck your instructions and if necessary check with your advisor or supervisor to determine the correct steps.

Bypass Data Set (Position 41)

When a diskette contains multiple data sets a B may be placed in this position of the label to signal the 3747 Data Converter to bypass this data set so that the records in it will not be converted to magnetic tape.

For example, when a program data set is on the same diskette with a data set containing normal records, the B code would be used in the program data set label to signal that it should be bypassed.

This procedure would be used because programs normally are not sent to the computer for processing.

Data Set Security (Position 42)

This position of the label cannot be written by the 3742. It can only be written by the computer.

If this position of the label contains anything other than a non-blank character, it will cause an A error to occur. An A error indicates that the data in the data set is confidential and it cannot be used by the 3742. If you should get an A error, remove the diskette and obtain another for use in the 3742.

Write Protect (Position 43)

A P is used in this position of the label to prevent accidental change or erasure of the data in the data set. For example, the P code could be used in a data set that contains only programs to guard against accidental changes. With a P in position 43, you *cannot* select Enter or Verify mode. You can select Update mode, but only for display purposes. If the data set is used incorrectly a G error will occur to alert the operator.

To add or change programs (or data) in a protected data set the following steps may be used:

1. Rewrite the label with a blank in position 43.

2. Add or change the desired programs.

3. Rewrite the label with a P in position 43.

Multivolume (Position 45)

In data processing terminology a diskette is also referred to as a *volume.* This position of the label is used for those jobs that require two or more diskettes to hold all of the records. A C in this position indicates that the job is continued on other diskettes. An L in this position of the label indicates that this is the last diskette in the job.

Reading Assignment

In the Operator's Guide read the section entitled *Create and Change Labels* then return to this point in the student guide.

Data Set Error Code Summary

The following error codes related to data set labels were introduced in this session. This summary is provided for your reference. Each of the codes is described in the *Recover Error* section of the Operator's Guide.

The codes are A, B, E, G, I, T, and 6.

A The A code indicates a secure data set. CORRECTION: Remove the diskette and obtain another for production use.

B The B code indicates that there is incorrect information in the label. CORRECTION: First ensure that the correct label is displayed. Then, if necessary, rewrite the label with the correct information.

E The E code indicates that an attempt was made to write a record beyond the End of Extent for the data set. CORRECTION: Continue the job on another diskette or rewrite the label with a higher End of Extent address.

G The G error code indicates an attempt to use a protected data set. CORRECTION: Use the correct data set or rewrite the label as described in the WRITE PROTECT topic of this session.

I The I code indicates an attempt to search for an address outside the extent of the data set. CORRECTION: Display the correct label before initiating the search or recheck and correct the address used in the search.

T The T code indicates an attempt to key beyond the length indicated by the record length field. CORRECTION: Rewrite the record length field or double check the job instructions as appropriate.

6 The 6 code is not an error; it occurs to indicate that the displayed label has been deleted. CORRECTION: Ensure that the correct label is displayed.

Self-Evaluation Questions

1. Which machine mode(s) is/are used when writing data set labels?

2. Which sequence of keys is used to write a data set label?

3. Where should you look to obtain the label information for a job?

4. How many labels would be on a diskette that has 5 data sets?

5. Which track contains the data set labels?

6. If the PAYROLL label is on the display and you initiate a search for an address in the INVENTRY data set, what will happen?

7. What condition(s) will cause an E error?

8. Which two positions in a label would be useful for a data set that contains only programs?

Answers to Self-Evaluation Questions

1. Index mode, then Modify mode.
2. FUNCT SEL lower, M, and REC ADV keys.
3. The job instructions.
4. 5, one for each data set.
5. The Index track (00).
6. An I error will occur.
7. Attempting to write a record in an address beyond the End of Extent for the data set.
8. Position 41 BYPASS data set, and position 43 WRITE PROTECT.

Summary

Data set labels are used by the computer, the operator, and the 3742 to determine the limits or characteristics of a data set.

To write a label on the diskette, you first must obtain the information from the job instructions, then write it in the Index track with the machine in Modify mode.

Before writing any label, you should check every sector in the Index track to ensure that you do not use the addresses assigned to an active data set.

When you are using a diskette with multiple data sets, the correct label must be on the display unit when a mode of operation is selected.

Because the label plays such an important part in controlling the use of the diskette, you should always ensure that the information in the label agrees with the job instructions.

COURSE SUMMARY

You have completed the course in the basic functions of the 3742.

As a result of this training you should be able to do the following:

1. Insert and remove a diskette.
2. Key a program into the machine and select it for use when needed.
3. Enter data under control of a program.
4. Update data already on a diskette.
5. Verify data already on a diskette.
6. Recognize and correct common error conditions.
7. Write a data set label in the Index track.
8. Recognize the need to refer to job instructions when performing production work.
9. Use the Operator's Guide and this student guide as reference for any of the functions taught in this course.
10. Use the search EOD and the search address functions to add, delete, or change records on the diskette.

In the back of this book are listings of the exercises and the checklists used in the course. These can be valuable references, in addition to the Operator's Guide when doing production jobs.

A final self-examination is provided in this book. The examination consists of a series of machine problems. After you take a break, you may wish to complete the examination to test your ability to use the training received.

BREAK POINT

Final Examination

This self-examination consists of seven machine problems. For each problem you will be given directions detailing what is to be accomplished.

You will be expected to refer to the Operator's Guide and/or the student guide to determine the exact steps to use for any operation or to recover from any errors.

You may retry any problem as often as necessary; the important thing is to complete each problem and obtain the correct results.

You should be able to complete this examination in approximately 2 hours.

When you are satisfied that the data has been accurately recorded, compare the data on the diskette by following the directions given with each problem.

The problems in this examination are:

1. Writing data set labels.
2. Entering data from the Employee time sheet.
3. Entering data from the shipping invoice.
4. Adding a record to the payroll data set using search EOD.
5. Changing the data in a record of the shipping data set using search address.
6. Verifying data in the payroll data set.
7. Selecting program codes.

Machine Problem 1: Writing Data Set Labels

Two data set labels will be used in the examination. This problem consists of deleting all unneeded labels and writing two labels in the designated sectors.

Directions

1. Delete all labels in the Index track.
2. Write the following two labels in the designated sectors.
3. After completing the last label go on to the next problem.

Sector 09.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
H	D	R	1		T	I	M	E	C	A	R	D													8	0		0	1	0	0	1		0	2	0	2	6	

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
																																		0	1	0	0	1	

Sector 10

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
H	D	R	1		I	N	V	O	I	C	E														8	0		0	3	0	0	1		0	4	0	2	6	

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
																																		0	3	0	0	1	

Continued on next page.

4 Open the cover on the disk unit.

5 Close the cover on the disk unit and check the labels to ensure that Sector 08, and Sector 11 are deleted, and that the labels in Sectors 9 and 10 contain the correct information.

END OF PROBLEM 1, GO ON TO THE NEXT PROBLEM.

Machine Problem 2: Entering Data from the Employee Time Sheet

This problem consists of keying a given program into storage area 1 then entering the records from the employee time sheet into the TIMECARD data set.

Directions

1 Load the following program into storage area 1.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
N	-	-	-	-	A	.	.	.	.	.	.	.	.	.	.	.	.	.	.	N	-	N	-	-	D	-	-	-	-	A	.	.	.	.	.	.	.	.	.

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A	E																																						

2 Enter the data from the Employee time sheet into the TIMECARD data set.

Continued on next page.

- Directions for the employee time sheet:
  - Key the characters into the position indicated.
  - The program will shift the keyboard as appropriate.
  - Auto Duplication is used for the week-ending field.
  - Use the DUP key for the Department field.
  - Use the SKIP key for any blank Project Name fields.

EMPLOYEE TIME SHEET						
EMPLOYEE NUMBER (1-5)	EMPLOYEE NAME (6-20)	HOURS (21-22)	DEPT. (23-25)	WEEK ENDING (26-30)	PROJECT NAME (31-40)	CODE (41)
				Auto Duplicate	Skip Any Blank Fields	
NUMERIC	ALPHABETIC	NUMERIC	NUMERIC	NUMERIC	ALPHABETIC	ALPHA
12345	JONES	40	123	12-12	WIDGITS	C
12346	SMITH	35	123	12-12	SPINDLES	C
12347	ALBERTSON	45	123	12-12		C
12348	RINKLESON	43	125	12-12		D
12349	RONBURG	38	125	12-12	TURNBOLTS	D

After entering the last data record return the machine to Index mode. Check the accuracy of your entries by doing the following:

3 With the time card label displayed, select UPDATE mode.

4 Use the REC ADV key to display and check the accuracy of each record.

5 After displaying and checking the last record, return the machine to Index mode.

END OF PROBLEM 2, GO ON TO THE NEXT PROBLEM.

Machine Problem 3: Entering Data from the Shipping Invoice

This problem consists of keying three programs into storage areas 1, 2 and 3, then using these programs to enter data from the two shipping invoices.

Directions

1 Load the following three programs into storage areas 1, 2 and 3.

Program Storage Area 1.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	A	•	•	•	•

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	S	-	-	-	-	-	-	-	-	-	-	-	N	-	-	-	-	-	N	-	-	-	-	E	

Program Storage Area 2.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A	•	•	•	•	•	•	•	•	•	•	•	•	•	A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	A	•	•	•	•	•

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
•	•	•	•	•	•	•	•	•	A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	D	-	-	-	-	-	D	-	-	-	-	E	

Continued on next page.

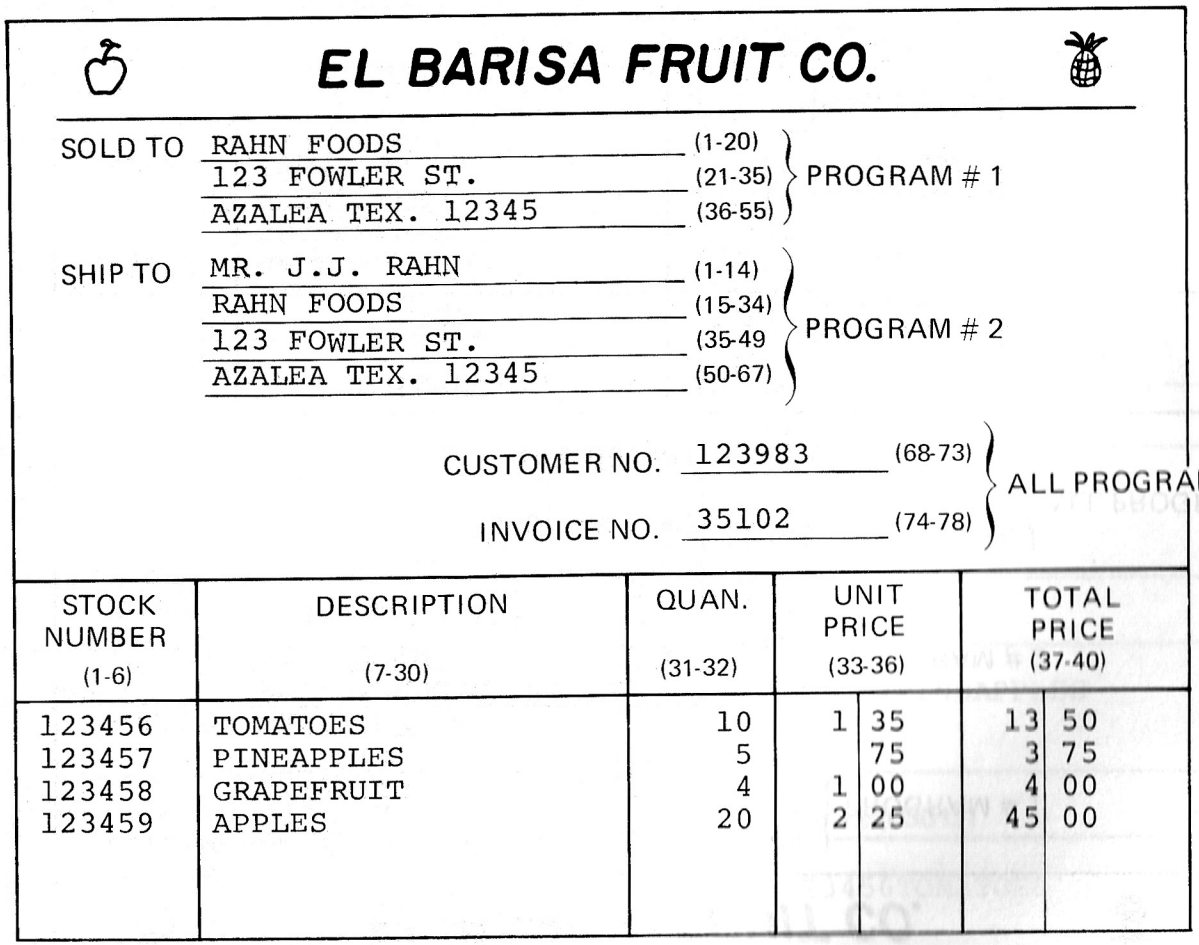
Program Storage Area 3.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
N	–	–	–	–	–	A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	J	–	J	–	–	–	J	–	–	–

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
S	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	D	–	–	–	–	–	D	–	–	–	–	E	

2 Display the INVOICE data set label, and enter the data from the following shipping invoices.

- Directions for the shipping invoices:
  - Use the indicated program for each area of the form.
  - Use Auto Duplication for the customer and invoice numbers and duplicate them into each record of each invoice.
  - Use RIGHT ADJ for the QUAN, UNIT PRICE and TOTAL PRICE fields.
    - Use the dash key for ANY minus numbers.
  - Use AUTO SKIP for positions 41-67 of the items in the bottom of the invoice.



EL BARISA FRUIT CO.

SOLD TO RAHN FOODS (1-20)
123 FOWLER ST. (21-35)
AZALEA TEX. 12345 (36-55)
} PROGRAM # 1

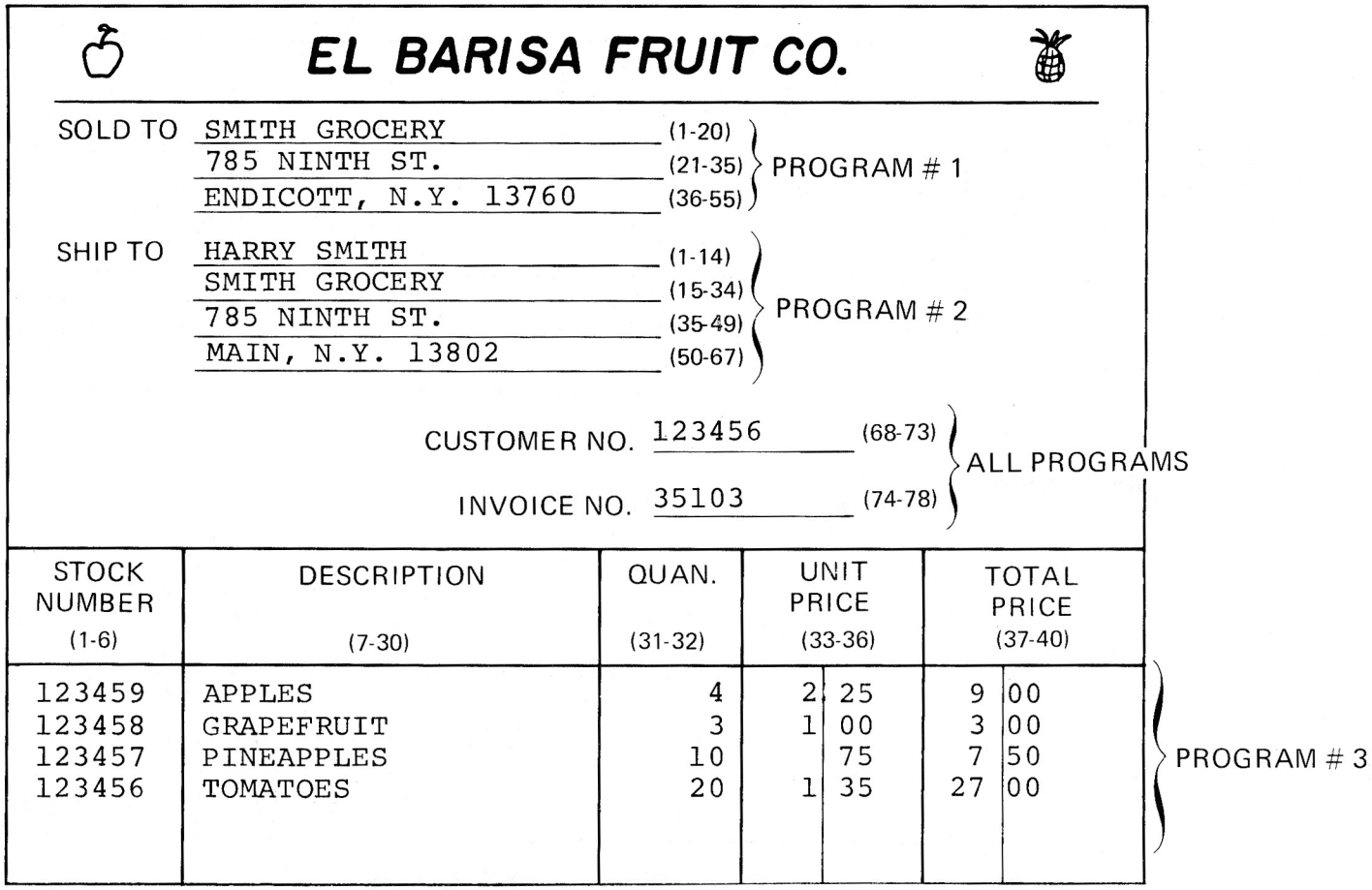
SHIP TO MR. J.J. RAHN (1-14)
RAHN FOODS (15-34)
123 FOWLER ST. (35-49
AZALEA TEX. 12345 (50-67)
} PROGRAM # 2

CUSTOMER NO. 123983 (68-73)
INVOICE NO. 35102 (74-78)
} ALL PROGRAMS

STOCK NUMBER (1-6)	DESCRIPTION (7-30)	QUAN. (31-32)	UNIT PRICE (33-36)	TOTAL PRICE (37-40)
123456	TOMATOES	10	1 35	13 50
123457	PINEAPPLES	5	75	3 75
123458	GRAPEFRUIT	4	1 00	4 00
123459	APPLES	20	2 25	45 00

} PROGRAM # 3

Continued on next page.



EL BARISA FRUIT CO.

SOLD TO
SMITH GROCERY (1-20)
785 NINTH ST. (21-35)
ENDICOTT, N.Y. 13760 (36-55)
} PROGRAM # 1

SHIP TO
HARRY SMITH (1-14)
SMITH GROCERY (15-34)
785 NINTH ST. (35-49)
MAIN, N.Y. 13802 (50-67)
} PROGRAM # 2

CUSTOMER NO. 123456 (68-73)
INVOICE NO. 35103 (74-78)
} ALL PROGRAMS

STOCK NUMBER (1-6)	DESCRIPTION (7-30)	QUAN. (31-32)	UNIT PRICE (33-36)	TOTAL PRICE (37-40)
123459	APPLES	4	2 25	9 00
123458	GRAPEFRUIT	3	1 00	3 00
123457	PINEAPPLES	10	75	7 50
123456	TOMATOES	20	1 35	27 00

} PROGRAM # 3

3 After all items from the second invoice have been entered return to Index mode.

Check the accuracy of your entries by doing the following:

4 Select UPDATE mode and use the REC ADV key to display each of the records as you compare them to the examples given on the following page.

5 After displaying and checking the last record return the machine to Index mode.

END OF PROBLEM 3, GO TO THE NEXT PROBLEM

The records (and their disk addresses) created from the shipping invoices should look like this on the display.

Record 1 (03001)

```
RAHN FOODS                123 FOWLER ST. AZALE
A TEX. 12345                    12398335102
```

Record 2 (03002)

```
MR. J.J. RAHN  RAHN FOODS              123 FO
WLER ST. AZALEA TEX. 12345 12398335102
```

Record 3 (03003)

```
123456TOMATOES                      10 1351350
                                12398335102
```

Record 4 (03004)

```
123457PINEAPPLES                     5  75 375
                                12398335102
```

Record 5 (03005)

```
123458GRAPEFRUIT                     4 100 400
                                12398335102
```

Record 6 (03006)

```
123459APPLES                        20 2254500
                                12398335102
```

Record 7 (03007)

```
SMITH GROCERY          785 NINTH ST.  ENDIC
OTT, N.Y. 13760                 12345635103
```

NOTE CHANGE FROM RECORD 6 { CUSTOMER NUMBER } INVOICE NUMBER

Record 8 (03008)

```
HARRY SMITH    SMITH GROCERY          785 NI
NTH ST.   MAIN, N.Y. 13802  12345635103
```

Record 9 (03009)

```
123459APPLES                         4 225 900
                                12345635103
```

Record 10 (03010)

```
123458GRAPEFRUIT                     3 100 300
                                12345635103
```

Record 11 (03011)

```
123457PINEAPPLES                    10  75 750
                                12345635103
```

Record 12 (03012)

```
123456TOMATOES                      20 1352700
                                12345635103
```

Machine Problem 4: Adding a Record to the TIMECARD Data Set

In this problem you will use the Search EOD function to add a record to the end of the TIMECARD data set.

Directions

1. Use the Search EOD function and add the following record to the end of the TIMECARD data set.

(1-5)	(6-20)	(21-22)	(23-25)	(26-30)	(31-40)	(41)
12350	BOLEBRUCH	45	125	12-12	SPINNERS	D

2. Return the machine to Index mode.

3. Do another search for the EOD, and check to insure that the record was correctly added.

4. Return the machine to Index mode.

END OF PROBLEM 4, GO ON TO THE NEXT PROBLEM

Machine Problem 5: Changing the Data in a Record of the Invoice Data Set

In this problem you are to use the search address function to locate a record in the Invoice Data Set and change the quantity and total price.

Directions

1. Use the search address function to locate the APPLES record for invoice 35103. The address should be Track 03 Sector 09.

2. With the APPLES record displayed, change the quantity from 4 to 24 and change the total price from 900 to 5400.

3. After pressing "REC ADV" to effect the changing of the record on the diskette, return the machine to INDEX mode.

4. Search for address 03009 again, and check to ensure that the record was correctly entered.

5. Return the machine to Index mode.

END OF PROBLEM 5, GO ON TO THE NEXT PROBLEM

Machine Problem 6: Verifying Data in the Timecard Data Set

In this exercise you will be given the program to use and the source information that is to be considered to be correct. There will be errors introduced into the source information and you are to use the appropriate method to correct them.

Accepted corrections are:

- Correct a single character.
- Use field correct where appropriate.
- Delete records as appropriate.

Directions

1 Load the program into the storage area of your choice.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
N	-	-	-	-	A	·	·	·	·	·	·	·	·	·	·	·	·	·	·	N	-	N	-	-	D	-	-	-	-	A	·	·	·	·	·	·	·	·	·

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
A	E																																						

2 Use the program and the Employee Time Sheet to verify the Timecard data set. Remember that the information on this sheet is the correct data. You are to change the records on the diskette to agree with it. If there are any extra or missing records, add or delete them as appropriate.

EMPLOYEE TIME SHEET

EMPLOYEE NUMBER (1-5)	EMPLOYEE NAME (6-20)	HOURS (21-22)	DEPT. (23-25)	WEEK ENDING (26-30)	PROJECT NAME (31-40)	CODE (41)
				Auto Duplicate	Skip Any Blank Fields	
NUMERIC	ALPHABETIC	NUMERIC	NUMERIC	NUMERIC	ALPHA	ALPHA
12345	JONES	40	123	12-12	WIDGETS	C
12346	SMITHE	35	123	12-12	SPINDLES	C
12348	RINKLESON	43	125	12-12		D
12349	RONBUR	38	125	12-12	TURNBOLTS	D
12350	BOLEBRUCH	45	125	12-12	SPINNERS	D

3 After the verify is complete, reset the flashing display.

4 Select update mode, and use the REC ADV key to compare each record to the information on the employee time sheet in step 2.

5 Return the machine to Index mode.

END OF PROBLEM 6, GO ON TO THE NEXT PROBLEM.

Problem 7: Selecting Program Codes

This problem does not use a machine, a suggested solution is given

On a separate sheet of paper write down the Begin field and Continue field codes to correctly program for a source document as described below.

FIELD NAME	DESCRIPTION	NUMBER	LOCATION	WAREHOUSE NAME	QUANTITY	EXCEPTION CODE	ORDER POINT
FIELD POSITIONS	(1-20)	(21-30)	(31-35)	(36-50)	(51-55)	(56)	(57-60)
KEYBOARD SHIFT	ALPHABETIC	NUMERIC	31-33 Alpha 34-35 Numeric	ALPHABETIC	NUMERIC	ALPHABETIC	NUMERIC
Special Instructions				Auto Dup. This Field	Use Right Adj. Blank Full	Use Auto-Skip For This Field	

Suggested Solution to Problem 7

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	N	–	–	–	–	–	–	–	–	–	A	•	•	–	–	U	•	•	•	•

41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
•	•	•	•	•	•	•	•	•	•	J	–	–	–	–	K	N	–	–	–	E																			

Final Examination Summary

This completes the basic operator training course. Your next assignment is to contact your advisor or supervisor and arrange for on-the-job training to learn how to use the machine for the specific application(s) in your office.

As you use the machine, be sure to refer to the operators guide and/or this student guide for directions concerning any operation. Also you should make certain that you obtain and understand the instructions for every job that you do.

Instructions to the Advisor

This course is designed to allow the students to proceed at their own rate of speed with little or no assistance. However, because each student's learning experiences are different, an advisor should be available to answer questions and provide assistance if the student encounters any problems.

The advisor may be a previously trained operator, a systems analyst or supervisor trained on the 3742.

The advisor should read through the student guide before giving the course to the student, and where possible, the advisor should perform each of the machine exercises.

Advisor Prepares the Student Diskette

An IBM diskette, with the following data set label information, must be provided for student use. Directions for creating a data set label are in the 3742 Dual Data Station Operator's Guide (Form Number GA21-9136) in the section entitled *Create and Change Labels.*

Diskette Data Set Label Information

1. The data set label in Track 00 Sector 08 must contain the following information in the indicated positions. Blanks must be inserted where indicated.

(POSITIONS)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
	H	D	R	1		S	T	U	D	E	N	T														8	0		0	1	0	0	1		7	3	0	2	6	

(POSITIONS)	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
																																			0	1	0	0	1	

2. The records in Sectors 9 through 26 must be deleted. (See *To Delete Data Set Labels* in the section of the Operator's Guide entitled *Create and Change Labels.)*

3. The student will require the full time use of a 3742 Data Station for the 20 to 25 study hours required for the course.

4. The student will require the following materials:

   - Pencil and scratch paper.
   - The operator training course (this book).
   - 3742 Data Station Operator's guide, Form Number GA21-9136.
   - The student diskette. (See directions for preparing the diskette.)

END OF ADVISOR INSTRUCTIONS

Quick Reference Checklists

List of Machine Exercises

Index

International Business Machines Corporation
Data Processing Division
1133 Westchester Avenue, White Plains, New York 10604
(U.S.A. only)

IBM World Trade Corporation
821 United Nations Plaza, New York, New York 10017
(International)

GR20-4371-0

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